APPENDIX A: INTERDISCIPLINARY TEAM ANALYSIS RECORD CHECKLIST

Project Title: State-wide Land Use Plan Amendment EA for Fire and Fuels Management

NEPA Log Number: **File/Serial Number**:

Project Leader: Jolie Pollet **Date Proposal Received**: August 5, 2004

Plan Decision/Objective: Fire, Fuels Management **Date of Public Notification**: NOI 04/02/04, ENBB June 2004

FOR EA: NP: not present; NI: resource/use present but not impacted; PI: potentially impacted

STAFF REVIEW OF PROPOSAL:

NP/NI/PI NC	Resource	Date Reviewed	Signature	**Review Comments** (required for all NIs and PIs. PIs require further analysis.)
CRITICAL ELEMENTS				
PI	Air Quality	8/9/04	/s/ Greg Zschaechner	Issues: 1. Impacts on Class 1 visibility; 2. impacts on human health from particulate matter.
PI	Areas of Critical Environmental Concern	8/9/04	/s/ Dave Mermejo	Issue: 1. Impact on the relevant and important resource value at issue per ACEC
PI	Cultural Resources	8/9/04	/s/Lori Hunsaker	Issue: 1. Impacts on sites of cultural and archaeological value
NI	Environmental Justice	8/9/04	/s/ Matthew Higdon	Title VI of the Civil Rights Act and Executive Order 12898 ("Environmental Justice") require federal agencies to identify and address "disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations." In accordance with CEQ Environmental Justice Guidelines, minority populations should be identified and effects to them analyzed, if either of the following two conditions apply: (1) of those likely to be affected by the Proposed Action, 50 percent or more would be part of the minority population, and (2) within the project area, the minority population percentage is greater than the minority population percentage outside the project area or in the general population. Neither of these conditions applies to the Planning Area for this effort. (Minority populations make up 13.5% of the population of the Planning Area; low-income individuals make up 9.4%). Further, given that the Planning Area for this Proposed Action includes most of the State of Utah, and that the Proposed Action would be implemented consistently across the state, it is unlikely that any one portion of the population would be disproportionately affected by the implementation of the Proposed Action.
NI	Farmlands (Prime or Unique)	8/9/04	/s/ Lisa Bryant	The BLM manages land in the planning area that would qualify as prime, unique, and/or important farmland. However, there is nothing in the Proposed Action that would irreversibly convert any BLM lands to non-agricultural use or result in the potential loss of prime farmlands,

NP/NI/PI NC	Resource	Date Reviewed	Signature	**Review Comments** (required for all NIs and PIs. PIs require further analysis**.)**
				as defined by the Farmland Protection Policy Act.
PI	Floodplains	8/9/04	/s/ George Cruz, Lisa Bryant	Issues: 1. Impacts to floodplain resources from suppression activities. (ex: firelines) 2. Impacts to floodplain resources from fuel treatments and wildland fire. (ex: flooding, increased sedimentation, soil erosion)
PI	Invasive, Non-native Species	8/9/04	/s/ Lisa Bryant	Issue: 1. Indirect/direct impacts to biodiversity of plant communities, with analysis based on (a) Increase or spread of invasive species due to fire mgmt. activities; (b) Increase susceptibility of invaded communities to wildfire; (c) Conversion of shrubland communities to annual grasses resulting in shorter fire return interval and self-perpetuating grassland communities and the lack of successful methods for treating/restoring these areas.
PI	Native American Religious Concerns	8/9/04	/s/ Lori Hunsaker	Issue: 1. Impacts to traditional use of vegetation and cultural or religious sites.
PI	Threatened, Endangered or Candidate Species	8/9/04	/s/ Ron Bolander	Issue: 1. Impacts to listed/candidate species and their habitats and 'designated critical habitat'
NI	Wastes (hazardous or solid)	8/11/04	/s/ Lowell Jeffcoat	Concerns of potential impacts from fire management decisions on hazardous materials have been resolved by including into the Proposed Action Resource Protection Measures to be followed.
PI	Water Quality (drinking/ground)	8/9/04	/s/ George Cruz	Issue: 1. Direct/indirect impacts to water quality (including beneficial use).
PI	Wetlands/Riparian Zones	8/9/04	/s/ Tom Mendenhall	Issue: 1. Impact on wetlands and riparian zones, with analysis based on (a) sediment delivery; (b) shade retention; (c) woody debris delivery; (d) stream-bank stability; (e) litter fall; (f) nutrient input
PI	Wild and Scenic Rivers	8/9/04	/s/ Dave Mermejo	Issue: 1. Impacts to outstanding remarkable values, tentative classification, and free flowing nature.
PI	Wilderness / WSAs	8/9/04	/s/ Dave Mermejo	Issue: 1. Direct / indirect impacts on Wilderness and suitability of WSAs. 2. Impacts to naturalness resulting from the infestation of noxious weeds and other plants (cheatgrass) after suppression activities.
OTHER RESOURCES / CONCERNS*				
NI	Rangeland Health Standards and Guidelines	8/9/04	/s/ Larry Lichthardt	Potential for impacts related to Rangeland Health Standards from fire management decisions have been addressed in the Proposed Action, as Resource Protection Measures related to vegetation and livestock grazing, and therefore, will not be brought forward for analysis. Such inclusion would provide for Proposed Action consistency with the BLM's Rangeland Health Standards.

NP/NI/PI NC	Resource	Date Reviewed	Signature	**Review Comments** (required for all NIs and PIs. PIs require further analysis**.)**
PI	Livestock Grazing	8/9/04	/s/ Larry Lichthardt	Issue: 1. Impact to allotment use.
PI	Woodland / Forestry	9/1/04	/s/ Kathy Radigan	Issue: 1. Impact upon biomass availability (including firewood collection) and healthy forest conditions (including old growth).
PI	Vegetation including Special Status plant species	8/9/04	/s/ Larry Lichthardt (Veg.), /s/ Ron Bolander (SSS)	Issue: 1. Impacts on vegetation condition goals and objectives.
PI	Fish and Wildlife including Special Status Species	8/9/04	/s/ Steve Madsen and /s/ Ron Bolander (wildlife), /s/ Tom Mendenhall (fish)	Issue: 1. Loss or modification of crucial habitats, and disturbance/displacement of fish and wildlife species, as a result of vegetation alterations.
PI	Soils	8/9/04	/s/ Lisa Bryant	Issue: 1. Impacts to soils, with analysis based on (a) nutrient cycling; (b) infiltration/ runoff (compaction); and (c) erosion/sedimentation.
PI	Recreation	8/9/04	/s/ Dave Mermejo	Issue: 1. Impacts on developed recreation sites/facilities. Any impacts on OHV recreation is addressed and resolved in the Proposed Action, as a Resource Protection Measure that states that vehicle tracks created off of established routes would be obliterated after fire management actions in order to reduce unauthorized OHV travel.
PI	Visual Resources	8/9/04	/s/ Dave Mermejo	Issue: 1. Impact on Visual Resources
NI	Geology / Mineral Resources	9/9/04	/s/ George Diwachek	Concerns regarding potential conflicts with geology / mineral resources have been incorporated into the Proposed Action as 'Resource Protection Measures.' Further, identified locations where wildland fire use is not appropriate include facilities related to mineral resources. Because safety buffers are to be provided around mineral resource facilities, and with such Resource Protection Measures, the issue of fire and fuels management impacts on geology and mineral resources is resolved and not necessary for further analysis in the EA.
NI	Paleontology	9/9/04	/s/ Laurie Bryant	Included in the Proposed Action is Resource Protection Measures that resolve concerns regarding fire management's impacts on paleontological resources. In the event that paleontological resources are discovered in the course of ground-disturbing suppression activities, efforts should be made to protect these resources. Further, BLM Manual and Handbook H-8270-1, Chapter III (A) and III (B) will be used in planning and implementation of projects.
NI	Lands / Access	9/9/04	/s/ Michael Dekeyrel	Concerns relating to lands and access are addressed as Resource Protection Measures in the Proposed Action. See Table 2.3. These statements resolve the potential for impacts and therefore, lands/access will not be brought forward for analysis in the EA.
PI	Fuels / Fire Management	8/9/04	/s/ Brad Washa	Issues related to Fuels and Fire Management makes up the Proposed Action, and is the purpose and need of EA. The EA analyzes a land use plan amendment addressing all issues related to

NP/NI/PI NC	Resource	Date Reviewed	Signature	**Review Comments** (required for all NIs and PIs. PIs require further analysis**.)**
				Fire and Fuels Management and therefore, analysis of this issue and impacts will be fully discussed.
PI	Socio-economics	8/9/04	/s/ Keith Rigtrup	Issue: 1. Impacts to socio-economics.
NI	Wild Horses and Burros	8/11/04	/s/ Gus Warr	Issues related to impacts of fire and fuels management decisions on Wild Horse and Burros would be resolved by inclusion of Resource Protection Measures in the Proposed Action. The Proposed Action includes avoidance of fencing that would restrict access to water. Therefore, it is not necessary to bring forward as an issue for analysis in the EA.
PI	Wilderness characteristics	8/30/04	/s/ Dave Mermejo	Issue: 1. Surface disturbing impacts from fire management activities (including rehabilitation actions) to the natural character of the landscape, outstanding opportunity for solitude and primitive/unconfined recreation, and to any supplemental values.

FINAL REVIEW:

Reviewer Title	Date	Signature	Comments
NEPA/ Environmental Coordinator	9/9/04	/s/ Matthew Higdon	
Deputy State Director, Natural Resources	9/27/04	/s/ Katherine P. Kitchell	These elements have been reviewed by ID Team members. Issues have been identified and carried forward for analysis in the EA. Where no issues are identified, rationale has been provided for this finding.

APPENDIX B:
CURRENT AND PROPOSED LAND USE PLAN FIRE MANAGEMENT DIRECTION

The table below compares the fire management direction from the No Action and the Proposed Action. Because the land use plans varied greatly in their scope and content, often direct comparison of ideas could not be made. Each of the land use plans from the No Action Alternative is referenced by number. The reference codes are as follows:

1. House Range Resource Area RMP 1987
2. Cedar Beaver Garfield Antimony RMP 1986
3. Grand RMP 1985
4. Salt Lake District Proposed Fire Management Plan Amendment UT-020-98-08 1998 (Amends five land use plans: Box Elder RMP 1986; Iso-Tract MFP 1985; Park City MFP 1975; Pony Express RMP 1990; Randolph MFP 1980)
5. Pinyon MFP 1983
6. Henry Mountains MFP 1982
7. Warm Springs RMP 1987
8. Grand Staircase-Escalante National Monument Management Plan 1999
9. San Juan RMP 1991
10. St. George RMP 1999

*The remaining seven LUPs—Vermilion MFP 1981; Zion MFP 1981; Paria 1981; Parker Mountain MFP 1982; Mountain Valley MFP 1982; Forest MFP 1977; Escalante MFP 1981—either do not have goals, objectives, and direction specifically related to fire management, or describe fire within the context of other resource management needs.

Alternative B: No Action	Alternative A: Proposed Action
Fire Management Goals and Objectives	
Safely reintroduce fire into ecosystems to meet desired resource management objectives by utilizing the best science (4). The objective of the fire management program will be to allow fire to play its natural role in the ecosystem (8). Reduce human and ecological losses; complement resource management objectives, and sustain productivity of biological systems through fire management (1, 2, 3, 4, 7, 10, 5).	Firefighter and public safety is the primary goal in all fire management decisions and actions. Wildland fire would be used to protect, maintain and enhance resources and, when possible, be allowed to function in its natural ecological role Hazardous fuels would be reduced to restore ecosystems; protect human, natural and cultural resources; and reduce the threat of wildfire to communities Fires would be suppressed at minimum cost, taking into account firefighter and public safety and benefits and values to be protected, consistent with resource objectives BLM would provide a consistent, safe and cost-effective fire management program through appropriate planning, staffing, training, equipment and management Every area with burnable vegetation would have an FMP based on a foundation of sound science Emergency stabilization, rehabilitation and restoration efforts would be undertaken to

Alternative B: No Action	Alternative A: Proposed Action
	protect and sustain resources, public health and safety and community infrastructure BLM would work together with their partners and other affected groups and individuals to reduce risks to communities and restore ecosystems
Fire Management Strategies and Actions	
Specific zoned areas and policies have been established to indicate how suppression activities will be managed in specific areas of the Monument. Changes in specific zone strategies may be updated annually (8). Complete a Beaver River Fire Plan (including Pinyon, Cedar, and Beaver Planning Units) based on the existing plan for Pinyon Planning Unit (2). Fuel management areas are identified by acre per polygon (4). Vegetation restoration methods fall into four broad categories: mechanical, chemical, biological, and management ignited fires. Each method will be used with vegetation objectives and have certain restrictions (8). BLM will collaborate with local, state, and federal agencies in promoting public education and awareness on fire prevention, protection of rural properties, and the proper role of fire in natural systems (10). Protection of other resources is fully integrated into the fire management strategies for all of the zones in southern Utah and northern Arizona (8). For any proposed fire management action, the major resources that should be given careful attention through a site inventory include geology, paleontology, cultural, riparian, soils, fish and wildlife, vegetation, special status animal and plant species, water resources, and air quality (8). Fire education that involves reintroduction of fire into ecosystems, along with traditional fire concerns would be a high priority (4). The Fire Management Activity Plan and fire management practices will be reviewed at five-year intervals to identify need for revision or modification (1, 5, 7).	The appropriate management response would be provided to all wildland fires, emphasizing firefighter and public safety and considering suppression costs, benefits and values to be protected. The appropriate management response would be consistent with resource objectives, standards and guidelines. Response to wildland fire would be based on ecological and social costs and benefits of the fire. The circumstances under which the fire occurs and the likely consequences to firefighter and public safety and welfare, natural and cultural resources and values to be protected, would dictate the appropriate management response to the fire. Fire Management Unit objectives, (as included in the FMPs), would further guide the appropriate management response. Wildland fire would be used to protect, maintain and enhance resources and, when possible, would be allowed to function in its natural ecological role. Areas where wildland fire use is appropriate and not appropriate are identified in **Table 2.1**. The FMPs would provide further operational guidance for wildland fire use. To reduce risks and to restore ecosystems, the following fuels management tools would be allowed throughout Utah: wildland fire use, prescribed fire, and mechanical, chemical, and biological actions. As conditions allow, the BLM would employ the least intrusive method over more intrusive methods. For example, wildland fire use is the preferred method of treatment. Where wildland fire use is not feasible, prescribed burning would be the preferred method. Where prescribed burning is not feasible, non-fire fuel treatments would become the preferred method of treatment. Work with partners in the WUI in wildland firefighting, hazardous fuels reduction, cooperative fire prevention education and technical assistance. Unauthorized wildland fire ignitions would be prevented through coordination with partners and affected groups

Alternative B: No Action	Alternative A: Proposed Action
	and individuals. The full range of prevention and mitigation activities would be used: personal contacts, mass media, education programs and signage. The following Emergency Stabilization and Rehabilitation (ESR) actions (after wildfire suppression) and rehabilitation for planned actions may be utilized to reduce potential for soil erosion and invasive species spread: seeding or planting native and/or non-native species; applying approved herbicides; implementing soil stabilization measures (e.g., stabilization structures, mulches); protecting cultural resources; repairing or replacing facilities; fencing, herding or removing livestock and/or horses; and resting allotments. Specific actions could include brush/tree chopping; contour tree felling; silt catchments; waddles, straw or fabric silt traps; mulching; drill seeding; aerial seeding; aerial seeding followed by mechanical seed covering (chaining, harrowing or other mechanical means); planting seedlings; fence construction or rebuilding; road/trail maintenance or closures; cattle guards; road culvert installation or cleaning; water bars; sign installation and maintenance; herbicidal or mechanical weed treatments; weather station installation and maintenance; repairing or rebuilding of minor facilities (cross fencing, wildlife structures, recreational facilities). Monitoring actions would be undertaken to determine results from fire management decisions and actions. Monitoring results would be used in determining the need for further LUP amendment or revisions.
Wildland Fire Suppression Objectives and Management Actions	
Reduce or minimize present fire suppression costs (3, 4, 5). Costs can be reduced by implementing less than full suppression on appropriate areas where access by ground fire fighting equipment is limited; and, during periods of multiple fire occurrences, work load can be reduced by freeing personnel and equipment to report to areas of higher resource values (5). During multiple fire situations with very high to extreme fire danger rating and multiple geographic areas, management response to wildland fires could change to "Full Suppression"	Fires would be suppressed at minimum cost, considering firefighter and public safety, benefits, and values to be protected, consistent with resource objectives. The BLM would provide a consistent, safe, and cost-effective fire management program through appropriate planning, staffing, training, equipment, and management. The following are 15-Year Cumulative Maximum Burned Acres for wildfires (used for analysis purposes only): • Box Elder RMP: 100,000 acres • Iso-Tract MFP: 1,000 acres

Alternative B: No Action	Alternative A: Proposed Action
strategy (4). The decision on whether wildland fires might be monitored, minimally suppressed, or aggressively attacked and the types of tactics used to suppress the fires would be based on decision criteria that would include resource management objectives, resource values, other values at risk, fire season severity, predicted weather and fire behavior, suppression costs, and other criteria specific to the fire site and time of occurrence. Refer to Table 2.2a-c of this plan for a listing of strategy and suppression techniques that would be used (4). Full fire suppression will be implemented in areas where risk of wildfire may harm or threaten: • Life or human-made facilities/property (4, 5, 7, 8) • Important high resource values (4, 2, 5) • State lands (2, 5) • Soil stability (5) • Predetermined boundary lines identifying a full suppression area (5) • Wilderness study areas (in accordance with wilderness guidelines) (5) • Air quality (5) Full suppression will continue on all public lands within planning units. The Pinyon Fire Plan will be combined with the Cedar and Beaver Planning Units to form the Beaver River Fire Plan. The Beaver River Fire Plan will establish the constraints and standards for fire management and establish the conditions for preparing an "Escaped Fire Analysis" within a full fire suppression area. (2). Initial attack and subsequent actions may include use of specialized crews, heavy equipment, retardant aircraft, and other means. A qualified boss should be present (5).	• Park City MFP: 100 acres • Pony Express RMP: 300,000 acres • Randolph MFP: 15,000 acres • Forest MFP: 10,000 acres • Henry Mountain MFP: 50,000 acres • Mountain Valley MFP: 90,000 acres • Parker Mountain MFP: 30,000 acres • House Range RMP: 100,000 acres • Warm Springs RMP: 100,000 acres • Grand RMP: 100,000 acres • San Juan RMP: 100,000 acres • Escalante MFP: 4,000 acres • Paria MFP: 6,000 acres • Vermilion MFP: 4,000 acres • Zion MFP: 25,000 acres • Cedar Beaver Garfield Antimony RMP: 130,000 acres • Pinyon MFP: 85,000 acres • St. George RMP: 50,000 acres • GSENM MP: 160,000 acres **TOTAL:** 1,460,100 acres (If these acres are exceeded, it may trigger re-analysis.)
Wildland Fire Suppression Objectives and Management Actions	
Wildfires will be suppressed in areas where the resources are identified as not capable of being improved or not capable of being successfully rehabilitated following fires or where a vegetative composition change is not desirable (5). The plan will address fire attack strategies	

Alternative B: No Action	Alternative A: Proposed Action
throughout the resource area with special attention to high potential, high risk areas (1, 7). Full suppression will continue on up to 2,015,555 acres (7). Develop a workable alternative to full fire suppression in areas within the planning unit where resource values are low or where fire may be a positive factor in vegetation change. Control, but not necessarily suppress, all wildfire. Provide adequate suppression where and when required. Carry out effective pre-suppression activities. Three levels of suppression will be applied—observation, modified suppression, and full suppression (5). Fire suppression will continue on 266,060 acres of the planning area to protect high resource values, developed recreation sites, and riparian/aquatic habitat (9).	
Limited Suppression and Wildland Fire Use Objectives and Management Actions	
Suppression strategies and tactics in the juniper/mountain shrub types (Fire Management Zone 3) would be modified to allow a greater use of "Resource Suppression" and "Natural Suppression" strategies and/or "indirect attack" methods when appropriate to meet resource management objectives while protecting values at risk and minimizing costs. Mechanized equipment would not be considered a viable suppression tool (4). Provide initial attack. If unsuccessful, fires may be permitted to burn with assurance that fire will stay within constraints and the results will be consistent with resource objectives (5). Limited suppression on up to 211,200 acres of pinyon and juniper woodland and possibly other areas (7). Fire will burn only on public land and state land in accordance with terms set forth in a Memorandum of Understanding or Cooperative Agreement. Written agreements will provide means to mitigate claims by private landowners pertaining to encroachment of fire on private or state land (5). A Fire Management Activity Plan will specifically identify and locate areas of limited suppression. Limited suppression will be conducted up to 89,000 acres of pinyon and juniper woodland	Though specific areas for wildland fire use would be identified in the FMPs, wildland fire use may be authorized for all areas, except when the following resources and values may be negatively impacted and there are no reasonable Resource Protection Measures to protect such resources and values: • WUI areas • Areas that are known to be highly susceptible to post-fire cheatgrass or invasive weed invasion • Important terrestrial and aquatic habitats • Non-fire adapted vegetation communities • Sensitive cultural resources • Areas of soil with high or very high erosion hazard • Class I areas and PM10 non-attainment areas • Administrative sites • Developed recreation sites • Communication sites • Oil, gas and mining facilities • Above-ground utility corridors • High-use travel corridors, such as interstates, railroads and/or highways The following are 15-Year Cumulative Maximum Acres for Wildland Fire Use:

Alternative B: No Action	Alternative A: Proposed Action
and possibly other areas (1). Conditional suppression up to 1,450,940 acres will continue in special resource areas (ACECs, ROS P-Class areas, resource values) (9). Modified suppression will take place if there is (5): • No threat to full suppression area, private land, or wilderness study area. • A favorable burning index (<80). • A favorable smoke dispersal clearing index (> or equal to 500). • There is a qualified fire boss present, qualified resource advisor present Most of the Monument is included in zones that have little fire suppression activity (8). Use Observation-Level Fire Management when (5): • Resource values are low and extinguishing costs are high. • No threat to full suppression area. • Favorable burning index (<80). • Favorable smoke dispersal clearing index (> or equal to 500). • Fire not a threat to private land. • Qualified observer present. Wildfire will be used to increase and maintain desirable vegetation types except on as noted above for "Full Suppression" (5).	• Box Elder RMP: 0 acres • Iso-tract MFP: 0 acres • Park City MFP: 0 acres • Pony Express RMP: 0 acres • Randolph MFP: 0 acres • Forest MFP: 4,500 acres • Henry Mountain MFP: 50,000 acres • Mountain Valley MFP: 36,000 acres • Parker Mountain MFP: 15,000 acres • House Range RMP: 10,000 acres • Warm Springs RMP: 10,000 acres • Grand RMP: 20,000 acres • San Juan RMP: 20,000 acres • Escalante MFP: 100 acres • Paria MFP: 100 acres • Vermilion MFP: 0 acres • Zion MFP: 100 acres • Cedar Beaver Garfield Antimony RMP: 0 acres • Pinyon MFP: 6,000 acres • St. George RMP: 500 acres • GSENM MP: 8,000 acres **TOTAL** 180,300
General Fuel Treatment Goals	
Vegetation restoration methods fall into four broad categories: mechanical, chemical, biological, and management ignited fires. Each method will be used with vegetation objectives and have certain restrictions (8). Vegetation management would include a wide variety of management activities including prescribed fire, mechanical manipulation, seeding of less flammable and more desirable species, fuel break establishment, and other strategies. These activities would be used to reduce fire severity and occurrence and reduce hazardous fuel accumulation. The relative level of fuels management would be "Moderate." (Refer to Table 2.2d for a listing of vegetation management techniques that would be used. Table 2.4 contains a listing by management polygon of the target acreage figures) (4).	The general DWFC is to have ecosystems that are at a low risk of losing ecosystem components following wildfire and that function within their historical range. In terms of FRCC, the DWFC outside the WUI is to trend to a lower FRCC using the least intrusive method possible. In other words, the DWFC is to move lands in FRCC 3 to FRCC 2 and lands in FRCC 2 to FRCC 1 through fire and non-fire treatments where wildland fire use is the preferred method of treatment, when feasible. Inside the WUI, the general DWFC is to have less potential for values to be threatened by wildland fire, usually through some modification of fuels.

Alternative B: No Action	Alternative A: Proposed Action
Reduce hazardous fuels buildup (5). Prescribed fires and mechanical/chemical treatments in desert shrub and semi-desert shrub communities will generally be limited to black stripping, as a hazardous fuel reduction method, or as site preparation for green stripping projects in said polygons (4).	
Prescribed Fire Objectives and Actions	
General application of prescribed fire will only be allowed in the upland, mountain, and wetland areas of certain polygons (4). Prescribed fires will be located in areas where the treatments will reduce the threat of large uncontrolled fires, create small mosaics of impacted areas to increase the "edge effect" and improve wildlife and plant diversity, and be spaced at proper distances so as to not cause impacts to local wildlife (4). Consultation with permittees, local and state agencies, adjacent land managers, Indian Tribes, and nearby private landowners will be required for all prescribed burns during the planning phase to ensure such burns minimize disruption to existing land uses and that affected publics are notified (10). Prescribed fire use will be defined in a Fire Management Activity Plan covering the entire resource area (1, 7). Prescribed fire will be used to maintain prior seedings, where feasible, for 53,300 acres and new seedings, where feasible, for 6,300 acres (9). Support from all resource programs will be required in the development of the management and prescribed fire plans (1, 2). Initiate prescribed fire and seeding on approximately 14,149 acres (in 11 allotments), thereby increasing AUMs by approximately 1,770 for livestock and wildlife (3). Prescribed fire may be used in selected areas to convert vegetation types or meet other management objectives (1, 7). Prescribed burning will be in compliance with BLM Manual Section 7723, "Air Quality Maintenance Requirements" (1, 2, 7, 8). Prescribed fire plans will be required by other programs to achieve resource objectives (2).	All prescribed fire acres would be for a primary purpose of hazardous fuels reduction or community protection from fires. While these acres would likely also accomplish other resource objectives, this plan aims to directly analyze effects from fire management decisions. The following are 15-Year Cumulative Maximum Acres for Prescribed Fire: • Box Elder RMP: 6,000 acres • Iso-Tract MFP: 500 acres • Park City MFP: 100 acres • Pony Express RMP: 15,000 acres • Randolph MFP: 7,000 acres • Forest MFP: 4,500 acres • Henry Mountain MFP: 50,000 acres • Mountain Valley MFP: 36,000 acres • Parker Mountain MFP: 15,000 acres • House Range RMP: 20,000 acres • Warm Springs RMP: 20,000 acres • Grand RMP: 40,000 acres • San Juan RMP: 40,000 acres • Escalante MFP: 4,000 acres • Paria MFP: 6,000 acres • Vermilion MFP: 15,000 acres • Zion MFP: 25,000 acres • Cedar Beaver Garfield Antimony RMP: 80,000 acres • Pinyon MFP: 50,000 acres • St. George RMP: 30,000 acres • GSENM MP: 160,000 acres **TOTAL** 624,100

Alternative B: No Action	Alternative A: Proposed Action
Prescribed fire will be conducted on 500 acres of wildlife habitat at Potters Peak. Prescribed fire will be considered for use on up to ten vegetation treatment areas listed in Livestock Grazing when necessary to maintain desired vegetation communities in those areas. Fire rehabilitation areas may also be maintained through prescribed fire to achieve these same objectives (10). In accordance with the Dixie Fire Management Plan, the BLM will conduct prescribed burns and manage prescribed natural fires to achieve vegetation management objectives, improve wildlife habitat, reduce hazardous fuels, and achieve long-term objectives for soil stabilization and water quality (10). Management ignited fire is the vegetation restoration method most likely to be used in the Monument. This method will be used when fire has been documented to historically occur in an area, and where various factors have prevented natural fire cycles from occurring. In these circumstances, management ignited fires may be used, and will attempt to simulate natural fire intensity and timing. Specific objectives for all management ignited fires will be developed prior to its use in the Monument with recommendations from the GSENM Advisory Committee. Fire activities will be conducted and with appropriate fire management personnel, as provided in the Color Country Interagency Fire Management Area annual operating plan (8). Prescribed fires and mechanical/chemical treatments in desert shrub and semi-desert shrub communities will generally be limited to black stripping, as a hazardous fuel reduction method, or as site preparation for green stripping projects in said polygons (4--see also Non-Fire Objectives).	
Non-Fire Fuels Objectives and Actions	
Vegetation management would include a wide variety of management activities including prescribed fire, mechanical manipulation, seeding of less flammable and more desirable species, fuel break establishment, and other strategies. These activities would be used to reduce fire severity and occurrence and reduce hazardous fuel accumulation. The relative level of fuels management would be "Moderate."	All non-fire treatment acres would be for a primary purpose of hazardous fuels reduction or community protection from fires. While these acres would likely also accomplish other resource objectives, this plan aims to directly analyze effects from fire management decisions. The following are 15-Year Cumulative Maximum

Alternative B: No Action	Alternative A: Proposed Action
(Refer to Table 2.2d for a listing of vegetation management techniques that would be used. Table 2.4 contains a listing by management polygon of the target acreage figures) (4—see also Prescribed Fire). Mechanical/chemical treatments will be located in areas where the they will reduce the threat of large uncontrolled fires, create small mosaics of impacted areas to increase "edge effect" and improve wildlife and plant diversity, and be spaced so as to not cause impacts to local wildlife (4).	Acres for Non-Fire Fuel Treatments: • Box Elder RMP: 14,000 acres • Iso-Tract MFP: 1,000 acres • Park City MFP: 100 acres • Pony Express RMP: 55,000 acres • Randolph MFP: 14,000 acres • Forest MFP: 4,500 acres • Henry Mountain MFP: 50,000 acres • Mountain Valley MFP: 36,000 acres • Parker Mountain MFP: 15,000 acres • House Range RMP: 20,000 acres • Warm Springs RMP: 10,000 acres • Grand RMP: 40,000 acres • San Juan RMP: 40,000 acres • Escalante MFP: 4,000 acres • Paria MFP: 6,000 acres • Vermilion MFP: 20,000 acres • Zion MFP: 30,000 acres • Cedar Beaver Garfield Antimony RMP: 100,000 acres • Pinyon MFP: 35,000 acres • St. George RMP: 10,000 acres • GSENM MP: 160,000 acres **TOTAL** 664,600
Emergency Stabilization and Rehabilitation Objectives and Actions	
Rehabilitation in wildfire areas will be assessed and accomplished in accordance with emergency fire rehabilitation plans, which will be developed as required (1). Following wildfire in normal wildfire areas, rehabilitation (chaining and seeding, drilling seed, etc.) will be conducted in accordance with the Richfield District Normal Year Fire Rehabilitation Plan. Rehabilitation in other wildfire areas will be assessed and accomplished in accordance with emergency fire rehabilitation plans which will be developed as required (7, 1). BLM will conduct rehabilitation of lands affected by wildfire in accordance with provisions of the approved Dixie Normal Fire Rehabilitation Plan (1997). Any rehabilitation will require site-specific analysis including full cultural resource inventories on lands to be disturbed and appropriate consultation. In all cases, BLM will apply standards and guidelines approved for various resources included in Utah BLM's Standards for Rangeland Health and Guidelines for Grazing Management (10).	The following are 15-Year Cumulative Maximum Acres for Emergency Stabilization and Rehabilitation: • Box Elder RMP: 100,000 acres • Iso-tract MFP: 1,000 acres • Park City MFP: 100 acres • Pony Express RMP: 300,000 acres • Randolph MFP: 15,000 acres • Forest MFP: 10,000 acres • Henry Mountains: 50,000 acres • Mountain Valley MFP: 90,000 acres • Parker Mountain MFP: 30,000 acres • House Range RMP: 100,000 acres • Warm Springs RMP: 100,000 acres • Grand RMP: 100,000 acres • San Juan RMP: 100,000 acres • Paria MFP: 6,000 acres • Vermillion MFP: 4,000 acres • Zion MFP: 25,000 acres • Cedar Beaver Garfield Antimony RMP: 130,000 acres • Pinyon MFP: 85,000 acres • St. George RMP: 50,000 acres • Escalante MFP: 4,000 acres

Alternative B: No Action	Alternative A: Proposed Action
When reseeding is determined to be necessary, areas impacted by natural or prescribed fires, as well as mechanical and chemical treatments, will generally be reseeded using a diverse seed mix with emphasis on native species, and the seeding will occur the fall following the particular treatment or fire. The technique of two-way chaining and seeding will be the usual treatment to remove portions of juniper skeletons and decadent brush, prepare the seed bed, and then cover the seeds to improve germination and seeding success (4). When determining whether to reseed after fire, the overriding consideration is the vegetation management objective and priority to use native plants. Other considerations are the structure and diversity of vegetation in the area before it burned and the presence of noxious weeds (8). Native plants will be selected/considered for rehabilitation first. Introduced species used in the reseeding/rehabilitation efforts will be used according to developed policy. Introduced species may be included if they assist in short-term soil stabilization and do not outcompete native species in the longer term. Other land use activities will be restricted one to two years for habitat recovery purposes. After a wildland fire, livestock grazing would not be allowed on burned areas for a minimum of one growing season. It is anticipated that livestock will be restricted from the rehabilitated area for two years. However, it is recognized that there may be some circumstances which may require a longer period of rest. Examples of such circumstances include drought and poor establishment of the seeded area (4). Onsite BLM resource advisors will be assigned to extended attack fires where needed to integrate resource concerns into the development of tactical plans and to evaluate potential for post-fire rehabilitation (16).	• GSENM Management Plan: 160,000 acres **TOTAL** 1,460,100
Fire Management Resource Protection Measures	
Air: In conducting prescribed burns, BLM will design and time the projects so as to maximize smoke dispersal and protect the high-quality air shed within Zion National Park and other Class I areas in the region. For effective smoke management, ignition will be approved only	Resource Protection Measures included in the Proposed Action are presented in the main body of the text in this document as **Table 2.3**.

Alternative B: No Action	Alternative A: Proposed Action
when the burning index is 500 or greater (10). Air: Management ignited fires must comply with State of Utah Interagency Memorandum of Understanding to minimize air quality impacts from resulting particulates. This procedure requires obtaining an open burning permit from the State prior to conducting a management ignited fire (8). Soil and Water: Rehabilitation of disturbed sites, fire, chaining, dozing, etc., will use the best methodologies available that will increase rehabilitation success and minimize impacts to sensitive resources. Rehabilitation projects following vegetation treatments, prescribed fires, or wildland fires will utilize species that would establish the desired plant community, stabilize soils, reduce risk of a severe erosion event, and enhance soil productivity (4). Fish and Wildlife: BLM will manage fire suppression activities in desert tortoise habitat in accordance with applicable biological opinions of the FWS, provisions in the desert tortoise recovery plan, and guidelines in Fighting Wildfire in Desert Tortoise Habitat: Considerations for Land Managers, (T. Duck et al, 1995 Desert Tortoise Council Symposium—International Symposium of Wildland Fire) (10). Fish and Wildlife: Special attention will be given to crucial mule deer winter range (10). Cultural Resources: Surface-disturbing suppression activities will avoid known cultural sites to the extent avoidance is feasible (10). Cultural Resources: Native American groups will be notified prior to any vegetation/fuel management projects. Their concerns will be taken into account in the overall design of individual projects. Identified areas of cultural concern will be excluded from the project by avoidance and/or buffering. If cultural sites can not be avoided, BLM will work with affected parties to design culturally sensitive and appropriate mitigation strategies. This may include eliminating those locations from the project. As part of the project specific process, the District archaeologist would ensure that the Section 106 process is complete prior to any ground disturbing activity (4).	

Alternative B: No Action	Alternative A: Proposed Action
Cultural Resources: All vegetation treatment projects will be reviewed to determine the need for a cultural resource inventory. If sites are located, they will be marked for avoidance. Sites that could not be avoided will be evaluated for listing on the National Register. Eligible sites that could not be avoided would be mitigated (4). Visual Resources: Site specific planning for prescribed fires and other vegetation/fuel treatments in VRM Class II areas would include completion of BLM Form 8400-4, Contrast Rating Form, to insure that the objectives of Class II are met (4). Livestock Grazing: Fences could continue to be used in the long-term to control livestock (4). Administrative Designations: Wildfires in designated wilderness areas will be managed in accordance with applicable wilderness management plans (10). Administrative Designations: Wildfires in Wilderness Study Areas will be managed in accordance with guidelines in BLM's Interim Management Policy (BLM handbook H-8550-1) (10). Administrative Designations: A designated fire resource advisor will be consulted on all fires within the Monument that involve WSAs (8). Administrative Designations: Mechanical treatments will not be allowed in WSAs or lands where wilderness characteristics may need to be protected because of potential for future designation. Rehabilitation of these areas will be limited to the use of native plant species. Cross-country vehicle travel will not be allowed in these same areas if such travel may impact wilderness values (4). General: Although exempt from OHV use designations by regulation, fire suppression activities will be directed so as to give appropriate deference to resources and conditions intended to be protected by such designations (10). General: Major resources that should be given careful attention through a site inventory include: geology, paleontology, cultural, riparian, soils, fish and wildlife, vegetation, special status animal and plant species, water	

Alternative B: No Action	Alternative A: Proposed Action
resources, and air quality(8). General: Deference will be given to the use of the least disruptive practices in areas managed primarily for their natural values, including primitive recreation areas, designated wilderness areas, riparian zones, areas of critical environmental concern and rivers recommended as suitable for inclusion in the National Wild and Scenic River System (10). General: Cumulative impacts from natural fires, habitat conversion, or treatments on BLM, and adjacent state and private lands, will be considered prior to any treatment being implemented (4).	

APPENDIX C:
WILDLAND FIRE MANAGEMENT POLICY

Wildland Fire Management Policy	
Authority: The statutes cited herein authorize and provide the means for managing wildland fires.	
Organic Administration Act, Act of June 4, 1897 (16 USC 551)	This act authorizes the Secretary of Agriculture to make provisions for the protection of national forests against destruction by fire.
Protection Act of September 20, 1922 (42 Stat. 857; 16 USC 594)	Authorizes the Secretary of the Interior to protect and preserve, from fire, disease, or the ravages of beetles, or other insects, timber owned by the United States upon the public lands, national parks, national monuments, Indian reservations, or other lands under the jurisdiction of the Department of the Interior owned by the United States.
Clark-McNary Act of 1928 (45 Stat. 221; 16 USC 487)	Authorized technical and financial assistance to the states for forest fire control and for production and distribution of forest tree seedlings. (Sections 1 through 4 were repealed by the Cooperative Forestry Assistance Act of 1978.)
Federal Property and Administrative Service Act of 1949 (40 USC 471 et seq.)	Provides the government an economical and efficient system for procurement and supply of personal property and nonpersonal services.
Bankhead-Jones Farm Tenant Act, Act of July 22, 1937 (7 USC 1010, 1011)	Authorizes management of acquired farm tenant lands, and construction and maintenance of range improvements. It directs the Secretary of Agriculture to develop a program of land conservation and utilization to adjust land use to help control soil erosion, conduct reforestation, preserve natural resources, develop and protect recreational facilities, protect watersheds, and protect public health and safety.
National Park Service Acts, as amended (67 Stat. 495; 16 USC 1b)	Established the National Park Service, and management policies and guidelines for the National Park System. The Service must preserve the scenery, natural and historic objects, and wildlife within the parks.
Reciprocal Fire Protection Act, Act of May 27, 1955 (69 Stat. 66; 42 USC 1856a, 42 USC 1856)	Authorizes agencies that provide fire protection for any property of the United States to enter into reciprocal agreements with other fire organizations to provide mutual aid for fire protection.
Clean Air Act, Act of July 14, 1955, as amended (42 USC 7401 et seq.)	This act provides for the protection and enhancement of the nation's air resources and applies to the application and management of prescribed fire.
Wilderness Act, Act of September 3, 1964 (16 USC 1131, 1132)	Provides for the designation and preservation of wilderness.
National Wildlife Refuge System Administration Act of 1966, as amended (80 Stat. 927; 16 USC 668dd through 668ee)	Provides guidelines and directives for administration and management of all areas in the National Wildlife Refuge System, including "wildlife refuges, areas for the protection and conservation of fish and wildlife that are threatened with extinction, wildlife ranges, game ranges, wildlife management areas, or waterfowl production areas."
National Environmental	Requires the preparation of Environmental Impact Statements for

Wildland Fire Management Policy	
Policy Act of 1969 (42 USC 4321)	federal projects which may have a significant effect on the environment. It requires systematic, interdisciplinary planning to ensure the integrated use of the natural and social sciences and the environmental design arts in making decisions about major federal actions that may have a significant effect on the environment.
Endangered Species Act of 1973 (16 USC 1531)	Provides for the protection and conservation of threatened and endangered fish, wildlife, and plant species. Directs all federal agencies to utilize their authorities and programs to further the purpose of the Act.
Disaster Relief Act, Act of May 22, 1974 (88 Stat. 143; 42 USC 5121)	Provides the authority for the federal government to respond to disasters and emergencies. Established the Presidential declaration process and authorized disaster assistance programs.
Federal Fire Prevention and Control Act, Act of October 29, 1974 (88 Stat. 1535; 15 USC 2201)	Authorizes reimbursement to state and local fire services for costs incurred in firefighting on federal property.
Federal Land Policy and Management Act of 1976 (90 Stat. 2743)	Outlines functions of the BLM Directorate, provides for administration of public land through the BLM, provides for management of the public lands on a multiple use basis, and requires land-use planning including public involvement and continuing inventory of resources. The Act establishes as public policy that, in general, the public lands will remain in federal ownership, and also authorizes: • Acquisition of land or interests in lands consistent with the mission of the Department and land use plans. • Permanent appropriation of road use fees collected from commercial road users to be used for road maintenance. Collection of service charges, damages, and contributions and use of funds for specified purposes. • Protection of resource values. • Preservation of certain lands in their natural condition. • Compliance with pollution control laws. • Delineation of boundaries in which the federal government has right, title, or interest. • Review of land classifications in land use planning and modification or termination of land classifications when consistent with land use plans. • Sale of lands if the sale meets certain disposal criteria. • Issuance, modification, or revocation of withdrawals; review of certain withdrawals by October 1991. • Exchange or conveyance of public lands if in the public interest. • Outdoor recreation and human occupancy use. • Management of the use, occupancy, and development of the public lands through leases and permits. • Designation of federal personnel to carry out law enforcement responsibilities. • Determination of the suitability of public lands for rights-of-way purposes (other than oil and gas pipelines) and specification of the boundaries of each right-of-way. • Recordation of mining claims and reception of evidence of annual assessment work.

Wildland Fire Management Policy	
National Forest Management Act, Act of October 22, 1976 (16 USC 1600 et seq.)	This act directs the Secretary of Agriculture to specify guidelines for land management plans to ensure protection of forest resources. Implementing regulations at Title 36, Part 219 of the Code of Federal Regulations (36 CFR 219.27) specify that consistent with the relative resource values involved, management prescriptions in forest plans must minimize serious or long-lasting hazards from wildfire.
Federal Grant and Cooperative Agreement Act of 1977 (PL 950224, as amended by PL 97-258, September 13, 1982, 96 Stat. 1003; 31 USC 6301 thru 6308)	Established criteria for a federal agency to use to determine whether a transaction is procurement or financial assistance. Established guidelines to bring about uniformity in the selection and use of procurement contracts, grants, and cooperative agreements.
Supplemental Appropriation Act, Act of September 10, 1982 (96 Stat. 837)	Authorized both Secretaries to enter into contracts with state and local governmental entities, including local fire districts, for procurement of services in the preparedness, detection, and suppression of fires on any units within their jurisdiction.
Wildfire Suppression Assistance Act, Act of April 7, 1989 (PL 100-428, as amended by PL 101-11, April 7, 1989; 42 USC 1856).	This act authorizes the Secretary of Agriculture to enter into agreements with fire organizations of foreign countries for assistance in wildfire protection.
Indian Self-Determination and Education Assistance Act (PL 93-638), as amended	Provide for the full participation of Indian tribes in programs and services conducted by the federal government for Indians and encouraged the development of human resources of the Indian people; established a program of assistance to upgrade Indian education.
National Indian Forest Resources Management Act (PL 101-630, November 28, 1990)	Required the Secretary of the Interior to undertake management activities on Indian forestlands, in furtherance of the U.S. trust responsibility for these lands. Activities must incorporate the principles of sustained yield and multiple use, and include tribal participation.
Tribal Self-Governance Act of 1994 (PL 103-413)	Provided for native tribes to enter into annual funding agreements with Department of the Interior "to plan, conduct, consolidate, and administer programs, services, functions, and activities" administered by the DOI that are of special geographic, historical, or cultural significance.
Clean Water Act of 1987, as amended (33 USC 1251)	Establishes objectives to restore and maintain the chemical, physical, and biological integrity of the nation's water.
Executive Order 12898, Environmental Justice, February 11, 1994 (59 FR 7629)	Requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations.
Executive Order 13112, Invasive Species, February 3, 1999 (64 FR 6183)	Directs federal agencies to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species cause.

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Migratory Bird Conservation Act of 1929, as amended (16 USC 715) and treaties pertaining thereto	Provides for habitat protection and enhancement of protected migratory birds.
Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, January 10, 2001 (66 FR 3853)	Directs agencies within the executive branch to take certain actions to further implement the Migratory Bird Treaty Act, with the goal of promoting the conservation of migratory bird populations.
Wild and Scenic Rivers Act (PL 90-542)	Provides a national policy and program to preserve and protect selected rivers because of their outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values.
Archaeological Resource Protection Act	Expands the protections provided by the Antiquities Act of 1906 in protecting archaeological resources and sites located on public and Indian lands.
Executive Order 11514, Protection and Enhancement of Environmental Quality	Directs federal agencies to provide leadership in protecting and enhancing the quality of the nation's environment to sustain and enrich human life and to initiate measures to meet national environmental goals.
Executive Order 11593, Protection and Enhancement of the Cultural Environment	Requires federal agencies to provide leadership in preserving, restoring, and maintaining the historic and cultural environment of the nation by administering and initiating measures necessary to preserve, restore, and maintain federally owned sites, structures, and objects of historical, architectural, or archaeological significance.
Executive Order 11988, Floodplain Management	Requires federal agencies to take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains.
Executive Order 11990, Protection of Wetlands	Directs federal agencies to provide leadership and take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands.
Executive Order 12866, Regulatory Planning and Review	The objectives of this executive order are to enhance planning and coordination with respect to both new and existing regulations; to reaffirm the primacy of federal agencies in the regulatory decision-making process; to restore the integrity and legitimacy of regulatory review and oversight; and to make the process more accessible and open to the public.
Colorado River Basin Salinity Control Act	Authorized the construction, operation, and maintenance of works in the Colorado River Basin to control the salinity levels of the Colorado River.
National Historic Preservation Act of 1966, as amended (16	Expands protection of historic and archaeological properties to include those of national, state, and local significance. It also directs federal agencies to consider the effects of proposed actions on properties

Wildland Fire Management Policy	
USC 470)	eligible for, or included in, the National Register of Historic Places.
Healthy Forest Restoration Act of 2003	Crafted to reduce the threat of destructive wildfires while upholding environmental standards and encouraging early public input during review and planning processes.
Wild and Scenic Rivers Act of 1968 (PL 90-542, as amended) (16 USC 1271-1287)	Provide for a National Wild and Scenic Rivers System, and for other purposes.
These acts are codified (as referenced) in the United States Code which can be accessed at http://www4.law.cornell.edu/uscode	
Policy Documents	
Federal Wildland Fire Management Policy and Program Review, December 18, 1995, USDI and USDA Final Report. Federal Wildland Fire Management Policy and Program Review, March 23, 1996, USDI and USDA Implementation Action Plan Review and Update of the 1995 Federal Wildland Fire Management Policy, January, 2001, USDI, USDA, DoE, DoD, DoC, EPA, FEMA, and NASF.	The principles and policies in this plan, and subsequent reviews and amendments, provide a common approach to wildland fire by the Department of the Interior and the Department of Agriculture. The plan encourages agencies to move the emphasis from fire suppression to integrating fire into the management of lands and resources consistent with public health and environmental quality considerations. Managers are encouraged to use fire as one of the basic tools for accomplishing resource management objectives
Restoring Fire-Adapted Ecosystems on Federal Lands: A Cohesive Fuel Treatment Strategy for Protecting People and Sustaining Natural Resources. USDA Forest Service, Bureau of Indian Affairs, Bureau of Land Management, Bureau of Reclamation, National Park Service, U.S. Fish and Wildlife Service, U.S. Geological Survey, August 2, 2002.	Coordinated fuel treatments must be across federal and adjacent state, tribal, and private forest and rangelands ownerships to effectively protect communities and restore and maintain ecosystems. Established a standardized process to identify and coordinate fuels treatment projects in high-risk areas. Encouraged the development of multiyear landscape level fuel treatment plans across ownership boundaries.
Utah BLM Rangeland Health Standards and Guidelines, 1997.	BLM generated standards that spell out conditions to be achieved on BLM lands in Utah and guidelines that will be applied to achieve the standards.

Wildland Fire Management Policy	
Western Governor's Association (http://www.westgov.org/)	
A Collaborative Approach for Reducing Wildland Fire risks to Communities and the Environment: 10-Year Comprehensive Strategy, August 2001.	This plan outlined a comprehensive approach to the management of wildland fire, hazardous fuels, and ecosystem restoration and rehabilitation on federal and adjacent state, tribal, and private forest and rangelands in the United States, emphasizing measures to reduce the risk to communities and the environment
A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy Implementation Plan, May 2002, 27p.	A set of core principles was developed to guide the identification of goals for this strategy. These principles include such concepts as priority setting, accountability, and an open, collaborative process among multiple levels of government and a range of interests. The end results sought by all stakeholders are healthier watersheds, enhanced community protection, and diminished risk and consequences of severe wildland fires. This community-based approach to wildland fire issues combines cost-effective fire preparedness and suppression to protect communities and the environment with a proactive approach that recognizes fire as part of a healthy, sustainable ecosystem.
National Academy of Public Administration (http://www.napawash.org/)	
Managing Wildland Fire: Enhancing Capacity to Implement the Federal Interagency Policy, December 2001, 150p.	Recommended an organizational structure and other management tools for enhancing the federal land management agencies' capacity for managing wildland fire. Recognized that strong leadership and coordination already exist for operational firefighting activities, but that ecosystem health, fire hazard reduction, and community safety goals contained in agencies' fire management policy must be addressed immediately in a more consistent and accountable manner by all of such agencies. Otherwise, the threat of unnaturally severe wildfires would continue to grow, putting both communities and ecosystems at increasing risk.
Wildfire Suppression: Strategies for Containing Costs. A Report by a Panel of the National Academy of Public Administration for the U.S. Congress and the Departments of Agriculture and the Interior, September 2002, 65p.	Analyzed three aspects of fire management: • Enhancing hazard mitigation capacity • Utilizing local firefighting forces • Improving equipment and services acquisition
Federal Fire Management: Limited Progress in Restarting the Prescribed Fire Program (GAO/RCED-91-42), December 5, 1990.	The report reiterated that fire is beneficial and even necessary to wildlands. Where fire has been a historic component of the environment it is essential to continue that influence, and that attempts to exclude fire from such lands could result in unnatural ecological changes and increased risks created by accumulation of fuels on the forest floor. Supported the use of prescribed burn to achieve management objectives, when the risks of such a burn have been analyzed.
State of Utah Regulations and Local Government Plans	
Utah Administrative	Utah's regulations concerning water quality

Wildland Fire Management Policy	
Code R317	
Utah Administrative Code R307	Utah's regulations concerning air quality
Six County Association of Government 2004	Pre-Disaster Mitigation Plan for Utah's Juab, Millard, Piute, Sanpete, Sevier, and Wayne Counties
Southeastern Association of Government 2004	Natural Hazard Pre-Disaster Mitigation Plan for southeastern Utah's Carbon, Emery, Grand, and San Juan Counties
Bear River Association of Government 2004	Pre-Disaster Mitigation Plan for northern Utah's Bear River District (Box Elder, Cache, and Rich Counties)
Five County Association of Government 2004	Natural Hazard Mitigation Plan for southwestern Utah's Beaver, Garfield, Iron, Kane, and Washington Counties
Mountainland Association of Government 2004	Pre-Disaster Hazard Mitigation Plan for Utah's Summit, Utah, and Wasatch Counties
Wasatch Front Regional Council 2004	Pre-Disaster Mitigation Plan comprising Daggett, Duchesne, and Uintah Counties
Uintah Basin Association of Government 2004	Pre-Disaster Mitigation Plan for Utah's Wasatch Front: Davis, Morgan, Salt Lake, Tooele, and Weber Counties

APPENDIX D:
FIRE REGIME AND CONDITION CLASS ANALYSIS AND HISTORIC FIRE RETURN INTERVALS

1.1 FIRE REGIME CONDITION CLASS

Following are the specific criteria used to develop the Fire Regime Condition Class (FRCC) characterizations for Utah on BLM-administered lands. The criteria were developed from (Schmidt et al. 2002). Determinations were made based upon local expertise contained in a team comprised of Utah and Nevada BLM fire and fuels personnel and in consultation with FEIS (2004) and Effects of Fire on Flora (Brown and Smith 2000). See **Table D.1** for vegetation category assignments to fire regimes and condition classes.

1.1.1 Fire Regime

Fire Regime I describes an area that:

- historically has had low-severity fires with a frequency of 0-35 years; and
- is located primarily in low elevation forests of pine, oak, or pinyon and juniper woodland.

Cover types in this fire regime for Utah include wet and dry meadows, grasslands, ponderosa pine, ponderosa pine/mountain shrub, oak, and desert grassland. The team determined that pinyon and juniper woodland occurred in low to middle elevations and belonged in Fire Regime II (see below).

Fire Regime II describes an area that:

- historically had stand replacement severity fires with a frequency of 0-35 years; and
- is located primarily in low- to mid-elevation rangeland, grassland, or shrubland.

Cover types determined to be in this fire regime for Utah include juniper, pinyon, pinyon and juniper woodland, maple, mountain shrub, sagebrush, and sagebrush/perennial grass. The low to mid-elevation range for pinyon and juniper woodland is defined as occurring between 3,500 and 7,000 feet of elevation. Most pinyon and juniper woodlands in Utah occur within these elevations; therefore, the team decided that pinyon and juniper cover types should be assigned to FR II instead of FR I.

Fire Regime III describes an area that:

- historically has had mixed severity fires with a frequency of 35 through 100 years; and
- is located primarily in forests of mixed conifer, dry Douglas-fir, or wet ponderosa pine.

Cover types determined to be in this fire regime for Utah include: spruce-fir/mountain shrub and mountain fir/mountain shrub.

Fire Regime IV describes an area that:

- historically has had stand replacement severity fires with a frequency of 35-100+ years; and
- is located primarily in cover types dominated by mixed conifer, aspen, lodgepole pine, salt desert scrub, mountain mahogany, and mountain riparian.

Cover types determined to be in this fire regime for Utah include: spruce-fir, lodgepole, mountain fir, mountain mahogany, aspen, lodgepole/aspen, aspen/conifer, mountain riparian, and lowland riparian.

Fire Regime V describes an area that:

- historically has had stand replacement/or mixed severity fires with a frequency of 200+ years; and
- is located primarily in cover types dominated by spruce fir, alpine tundra, creosote/bursage, greasewood, hopsage, mesquite, Mojave mixed scrub, and blackbrush.

Cover types determined to be in this fire regime for Utah include alpine, salt desert scrub, blackbrush, creosote-bursage, and greasewood.

1.1.2 Condition Class

Condition Class 1 describes plant communities where, generally:

- fire regimes are within an historical range;
- the risk of loosing key ecosystem components is low; and
- vegetation attributes are intact and function within an historical range.

Condition Class 2 describes plant communities where, generally:

- fire regimes have been moderately altered from historical ranges;
- there exists a moderate risk of losing key ecosystem components from fire;
- fire frequencies have increased or decreased from historical frequencies by one or more return intervals, resulting in moderate changes to the size, frequency, intensity, or severity of fires or landscape patterns; and
- vegetation attributes have been moderately altered from the historical range of the attributes.

Condition Class 3 describes plant communities where, generally:

- fire regimes have been significantly altered from historical ranges;
- there exists a high risk of losing key ecosystem components from fire;
- fire frequencies have departed from historical frequencies by multiple return intervals, resulting in dramatic changes to the size, frequency, intensity, or severity of fires; or landscape patterns; and
- vegetation attributes have been significantly altered from the historical range of the attributes.

Table D.1 Fire Regime and Condition Class Assignments Based on GAP Vegetation Categories

GAP Vegetation Code	Fire Regime	Condition Class	Rational for Condition Class Characterization
1. Water	n/a	n/a	Not burnable
2. Spruce-fir	IV	1	There are few missed fire regimes and few invasive concerns due to high elevations where these forests occur.
3. Ponderosa pine	I	3	There have been many missed fire regimes and high potential for invasive species due to lower elevations where these forests occur. Fire intervals have greatly decreased leading to higher potential for severe fires.
4. Lodgepole	IV	1	There are few missed fire regimes and few invasive concerns due to high elevations where these forests occur.
5. Mountain fir	IV	1	There are few missed fire regimes and few invasive concerns due to high elevations where these forests occur.
6. Juniper	II	3	There are many missed fire cycles and high risk of invasive species. This vegetation type has overtaken sagebrush and grassland vegetation types and out-competes native understory vegetation leading to high risk of losing key ecosystem components following fire. This vegetation type has expanded dramatically from pre-settlement times due to fire suppression in shrublands and grasslands.
7. Pinyon	II	2 >7,000 feet	There are several missed fire cycles in higher-elevation pinyon pine woodland. There is some risk of invasive species, but less risk than at elevations below 7,000 feet. Pinyon pine has increased its range considerably in the past 100 years, and exists at higher densities and over larger areas than in pre-settlement times.
		3 <7,000 feet	In lower elevations, there are more missed fire cycles and higher potential for cheatgrass invasion. Pinyon pine has increased its range considerably in the past 100 years, and exists at higher densities and over larger areas than in pre-settlement times.
8. Pinyon and juniper woodland	II	2 >7,000 feet	There are several missed fire cycles in higher-elevation pinyon and juniper woodland. There is some risk of invasive species, but less risk than at elevations below 7,000 feet. Pinyon and juniper woodland has increased its range considerably in the past 100 years, and exists at higher densities and over larger areas than in pre-settlement times.
		3 <7,000 feet	In lower elevations, there are more missed fire cycles and higher potential for cheatgrass invasion. Pinyon and juniper woodland has increased its range considerably in the past 100 years, and exists at higher densities and over larger areas than in pre-settlement times.
9. Mountain	IV	2	Mountain mahogany is at a moderate risk of losing key

GAP Vegetation Code	Fire Regime	Condition Class	Rational for Condition Class Characterization
mahogany			ecosystem components. Fire frequencies have somewhat decreased resulting in higher potential for severe fires.
10. Aspen	IV	2	Aspen is declining throughout Utah due to decreased fire frequencies. There is only a moderate risk of losing key ecosystem components since it often successfully sprouts following fire.
11. Oak	I	2 >6,500 feet	Oak communities have been moderately altered (through more homogeneous stands, fewer young stands of shrubs) from the historical vegetation attributes. At higher elevations, there is less risk of invasive species.
		3 <6,500 feet	At lower elevations, oak communities have been more significantly altered by lack of fire. Further, these communities are at much higher risk of invasive species following fire.
12. Maple	II	2	Maple has been moderately altered due to lengthened fire intervals. Maple usually grows on moist sites, and is at less risk for invasive species.
13. Mountain shrub	II	2	Mountain shrub communities have been moderately altered from the historical due to lengthened fire intervals. Mountain shrub usually grows on more moist sites at higher elevations, and is at less risk for invasive species potential.
14. Sagebrush	II	2 >6,500 feet	Sagebrush communities have been moderately altered (through more homogeneous stands, higher shrub densities) from historical vegetation attributes. At higher elevations, there is less risk of invasive species.
		3 <6,500 feet	At lower elevations, sagebrush communities have been more significantly altered by lack of fire. Further, these communities are at much higher risk of invasive species following fire and are suffering drought-induced mortality.
15. Sagebrush/ perennial grass	II	2 >6,500 feet	Sage/grass communities have been moderately altered (through more homogeneous stands, dense shrub canopy out-competing native grasses) from the historical vegetation attributes. At higher elevations, there is less risk of invasive species.
		3 <6,500 feet	At lower elevations, sage/grass communities have been more significantly altered by lack of fire. Further, these communities are at much higher risk of invasive species following fire and sagebrush is suffering drought-induced mortality.
16. Grassland	I	2 >6,500 feet	Grasslands at higher elevations are less susceptible to invasive species overtaking natives following wildland fire.
		3 <6,500 feet	Grasslands at lower elevations are much more susceptible to invasive species overtaking natives following wildland fire.

GAP Vegetation Code	Fire Regime	Condition Class	Rational for Condition Class Characterization
17. Alpine	V	1	There are few missed fire regimes and few invasive concerns due to the high elevations where these grasslands occur.
18. Dry meadow	I	2 >6,500 feet	Meadows at higher elevations are less susceptible to invasive species overtaking natives following wildland fire.
		3 <6,500 feet	Meadows at lower elevations are much more susceptible to invasive species overtaking natives following wildland fire.
19. Wet meadow	I	1	Wet meadows are at low risk of losing key ecosystem components following fire. Their moisture helps native species compete with invasive species.
20. Barren	n/a	n/a	Not burnable
21. Lodgepole/ aspen	IV	2	Aspen is declining throughout Utah due to the decreased fire frequencies. There is only a moderate risk of losing key ecosystem components since it often successfully sprouts following fire.
22. Ponderosa pine/ mountain shrub	I	3	There have been many missed fire regimes and high potential for invasive species due to lower elevations where these forests occur. Fire intervals have greatly decreased leading to higher potential for severe fires.
23. Spruce-fir/mountain shrub	III	1	There are few missed fire regimes and few invasive concerns due to the high elevations where this mix of forests and shrublands occur.
24. Mountain fir/mountain shrub	III	2	Mountain fir/mountain shrub communities have been moderately altered from the historical due to lengthened fire intervals. These areas are found on more moist sites at higher elevations, and are at less risk for invasive species potential.
25. Aspen/ conifer	IV	2	Aspen is declining throughout Utah due to the decreased fire frequencies. There is only a moderate risk of losing key ecosystem components since it often successfully sprouts following fire.
26. Mountain riparian	IV	2	Mountain riparian typically occurs at higher elevations where invasive species are less problematic and fire intervals are less departed compared to lower elevations.
27. Lowland riparian	IV	3	Lowland riparian systems are particularly vulnerable to invasive species (tamarisk). These systems generally have also had more grazing pressure and vegetation attributes are highly altered from historical patterns.
28. Cloud	n/a	n/a	Not burnable
29. Lava	n/a	n/a	Not burnable
30. Agriculture	n/a	n/a	Not burnable
31. Urban	n/a	n/a	Not burnable
32. Salt desert scrub	V	3	Fire intervals have greatly increased due to cheatgrass invasion in these types. Many of these types are at extremely high risk of converting to cheatgrass following

GAP Vegetation Code	Fire Regime	Condition Class	Rational for Condition Class Characterization
			fire.
33. Desert grassland	I	3	Desert grasslands normally occur at lower elevations where they are much more susceptible to invasive species overtaking natives following wildland fire.
34. Blackbrush	V	2	Historically fire did not burn in this community. In some areas, invasive weeds such as cheatgrass and red brome have increased fire risk, and if a fire occurs may take over the site. Blackbrush plants do not resprout.
35. Creosote/ bursage	V	2	Historically fire did not burn in this community. In some areas, invasive weeds such as cheatgrass and red brome have increase fire risk, and if a fire occurs may take over the site. Creosote/bursage plants do not resprout.
36. Greasewood	V	3	Fire intervals have greatly increased due to cheatgrass invasion in these types. Many of these types are at extremely high risk of converting to cheatgrass following fire.
37. Pickleweed barrens	n/a	n/a	Not burnable
38. Wetland	n/a	n/a	Not burnable

2.1 HISTORIC FIRE RETURN INTERVALS

Fire return intervals were estimated based on information in FEIS, Bradley and others (1992) and Paysen and others (2000) to determine the Fire Return Interval (FRI) for all vegetation types that comprise >1% of the planning area. These vegetation types include: salt desert scrub, pinyon and juniper, sagebrush, grassland, blackbrush, and mountain shrub.

There are several assumptions made in this analysis that lead to limitations in applying the results. However, the analysis is meant to show an estimate of acres that were naturally burned in pre-settlement/historic times. The goal of determining such an amount is to guide current treatment objectives and determine the sustainability of current and future actions.

The assumptions made in this analysis are described below:

- Only *one* FRI is applied for each vegetation type and this FRI is constant for vegetation types across the state. In reality, the true FRI encompasses a wide range of years that fires historically burned on the landscape. Further, the FRI is often difficult to determine for vegetation types that do not record fire scars, which is the case for most of Utah BLM's vegetation types. The FRI was determined based on analysis of existing research and one number was selected for the sake of this simple exercise.
- GAP vegetation actually maps the existing vegetation, not the historical or pre-settlement condition. It is known that there have been significant vegetation

alterations since historical times. However, we do not know the extent or severity of most of these alterations. For the sake of this analysis, we assumed that current vegetation was somewhat similar to historic vegetation. Although we know this is false, the results should be in the approximate range of what occurred historically. For example, sagebrush was "lost" to pinyon and juniper, but they share a similar FRI in this analysis. For further explanation, see the bullet below.

- Pinyon and juniper woodland are assumed to be "encroached" rather than old-growth. Old-growth pinyon and juniper woodland has a FRI >200 years (Romme et al. 2002). However, it is estimated that only around 10 percent of the existing pinyon-juniper (Miller and Wigand 1994) is considered old-growth. For the purposes of this analysis, a more frequent FRI is used to approximate the historical FRI where juniper currently resides (in areas historically dominated by sagebrush and/or grasslands).

Table D.2 Calculations to Estimate Historic Acreage Burned in Wildfires

Veg. Type	FRI	BLM Acres in Planning Area	Annual Burned Acres
Box Elder			
Salt Desert Scrub	150	389,901	2,599
Pinyon and Juniper Woodland	35	56,815	1,623
Sagebrush	35	194,233	5,550
Grass	35	134,570	3,845
Blackbrush	150	0	0
Mtn. Shrub	50	4,729	95
Total		780,248	13,712
Cedar, Beaver, Garfield Antimony			
Salt Desert Scrub	150	71,765	478
Pinyon and Juniper Woodland	35	534,974	15,285
Sagebrush	35	290,655	8,304
Grass	35	70,510	2,015
Blackbrush	150	0	0
Mtn. Shrub	50	49,449	989
Total		1,017,353	27,071
Dixie/St. George			
Salt Desert Scrub	150	69,571	464
Pinyon and Juniper Woodland	35	200,455	5,727
Sagebrush	35	17,625	504
Grass	35	30,636	875
Blackbrush	150	162,271	1,082
Mtn. Shrub	50	50,168	1,003
Total		530,726	9,655
Escalante			
Salt Desert Scrub	150	961	6
Pinyon and Juniper Woodland	35	17,189	491
Sagebrush	35	5,355	153
Grass	35	2,975	85
Blackbrush	150	0	0
Mtn. Shrub	50	695	14
Total		27,175	749

Veg. Type	FRI	BLM Acres in Planning Area	Annual Burned Acres
Forest			
Salt Desert Scrub	150	1,812	12
Pinyon and Juniper Woodland	35	25,273	722
Sagebrush	35	17,131	489
Grass	35	22,440	641
Blackbrush	150	0	0
Mtn. Shrub	50	207	4
Total		66,863	1,868
Grand			
Salt Desert Scrub	150	593,794	3,959
Pinyon and Juniper Woodland	35	546,406	15,615
Sagebrush	35	210,416	6,012
Grass	35	168,696	4,820
Blackbrush	150	205,667	1,371
Mtn. Shrub	50	75,752	1,515
Total		1,800,731	33,292
Grand Staircase-Escalante National Monument			
Salt Desert Scrub	150	469,431	3,130
Pinyon and Juniper Woodland	35	690,611	19,732
Sagebrush	35	260,655	7,447
Grass	35	269,022	7,686
Blackbrush	150	75,311	502
Mtn. Shrub	50	38,484	770
Total		1,803,514	39,267
Henry Mountain			
Salt Desert Scrub	150	436,756	2,912
Pinyon and Juniper Woodland	35	159,503	4,557
Sagebrush	35	62,123	1,775
Grass	35	393,862	11,253
Blackbrush	150	275,081	1,834
Mtn. Shrub	50	21,201	424
Total		1,348,526	22,755
House Range			
Salt Desert Scrub	150	1,777,405	11,849
Pinyon and Juniper Woodland	35	246,789	7,051
Sagebrush	35	447,241	12,778
Grass	35	138,591	3,960
Blackbrush	150	0	0
Mtn. Shrub	50	7,680	154
Total		2,617,706	35,792
Mountain Valley			
Salt Desert Scrub	150	18,781	59

Veg. Type	FRI	BLM Acres in Planning Area	Annual Burned Acres
Pinyon and Juniper Woodland	35	227,369	6,496
Sagebrush	35	101,612	2,903
Grass	35	45,435	1,298
Blackbrush	150	0	0
Mtn. Shrub	50	10,744	215
Total		403,941	10,971
Paria			
Salt Desert Scrub	150	4,051	27
Pinyon and Juniper Woodland	35	8,175	234
Sagebrush	35	3,158	90
Grass	35	8,134	232
Blackbrush	150	10,998	73
Mtn. Shrub	50	193	4
Total		34,709	660
Park City			
Salt Desert Scrub	150	0	0
Pinyon and Juniper Woodland	35	0	0
Sagebrush	35	31	1
Grass	35	34	1
Blackbrush	150	0	0
Mtn. Shrub	50	14	0
Total		79	2
Parker Mountain			
Salt Desert Scrub	150	30	0
Pinyon and Juniper Woodland	35	98,356	2,810
Sagebrush	35	20,760	593
Grass	35	3,790	108
Blackbrush	150	0	0
Mtn. Shrub	50	5,785	116
Total		128,721	3,627
Pinyon			
Salt Desert Scrub	150	116,148	774
Pinyon and Juniper Woodland	35	668,221	19,092
Sagebrush	35	312,510	8,929
Grass	35	98,018	2,801
Blackbrush	150	0	0
Mtn. Shrub	50	4,850	97
Total		1,199,747	31,693
Pony Express			
Salt Desert Scrub	150	636,666	4,244
Pinyon and Juniper Woodland	35	249,834	7,138

Veg. Type	FRI	BLM Acres in Planning Area	Annual Burned Acres
Sagebrush	35	362,261	10,350
Grass	35	277,722	7,935
Blackbrush	150	0	0
Mtn. Shrub	50	27,943	559
Total		1,554,426	30,226
Randolph			
Salt Desert Scrub	150	5	0
Pinyon and Juniper Woodland	35	3,685	105
Sagebrush	35	139,064	3,973
Grass	35	17,049	487
Blackbrush	150	0	0
Mtn. Shrub	50	2,850	57
Total		162,653	4,622
San Juan			
Salt Desert Scrub	150	290,913	1,939
Pinyon and Juniper Woodland	35	601,700	17,191
Sagebrush	35	301,236	8,607
Grass	35	225,447	6,441
Blackbrush	150	314,824	2,099
Mtn. Shrub	50	20,306	406
Total		1,754,426	36,683
Vermilion			
Salt Desert Scrub	150	30,130	201
Pinyon and Juniper Woodland	35	70,544	2,016
Sagebrush	35	32,568	931
Grass	35	53,091	1,517
Blackbrush	150	1,456	10
Mtn. Shrub	50	28,277	566
Total		216,066	5,241
Warm Springs			
Salt Desert Scrub	150	1,058,962	7,060
Pinyon Juniper	35	261,368	7,468
Sagebrush	35	457,585	13,074
Grass	35	266,644	7,618
Blackbrush	150	0	0
Mtn. Shrub	50	2,837	57
Total		2,047,396	35,277
Zion			
Salt Desert Scrub	150	383	3
Pinyon and Juniper Woodland	35	62,941	1,798
Sagebrush	35	24,865	710

Veg. Type	FRI	BLM Acres in Planning Area	Annual Burned Acres
Grass	35	8,753	250
Blackbrush	150	25	0
Mtn. Shrub	50	18,902	378
Total		115,869	3,139

APPENDIX E:
PREHISTORIC, HISTORIC, AND TRADITIONAL CULTURAL AND RELIGIOUS SITE TYPES IN UTAH

PREHISTORIC ARCHAEOLOGICAL SITES

Burial	Evidence of human burial or interment, usually consisting of human bone or fragments, as well as funeral objects.
Ceramic Scatter	A location of scattered broken pottery shards, usually from a single vessel.
Hunting & Gathering Camp	A temporary or seasonal habitation area that is associated with hunting and gathering of floral or fauna.
Isolated Artifacts	Artifacts, such as lithic tools and ceramic shards that lack association to a site.
Lithic Scatter	A location used for the manufacture of stone tools, as evidenced by the presences of lithic flakes, cores, and discarded broken tools.
Midden	A refuse area usually associated with occupation sites, such as extended campsites and villages.
Open Camp Site	A temporary habitation area usually associated with movement across the landscape.
Petroglyphs	Designs that have been pecked, etched, or scratched into a rock face.
Pictographs	Designs that have been painted onto a rock face.
Quarry/Lithic Source	A geological location, usually an outcrop, which served as a source for raw lithic material used for the manufacture of stone tools, paints, or ceramics.
Rock Alignments	A series of stones laid in alignments that are not naturally occurring geological features.
Rock Cairn	A trail marker, monument, or possible religious structure consisting of stones placed in a pile or cluster.
Rock Shelter	A habitation area located within a rock shelter or cave.
Village	A place of habitation for several families or more, who had multiple generations dwelling in the same area over a long period of time.

HISTORIC ARCHAEOLOGICAL SITES

Cemetery	Historic burials that are usually located in a formal area of interment that have been laid out and enclosed by a fence. The graves are marked by headstones.
Grave	One or more historic burials that are usually located along trails or in isolated areas as opposed to cemeteries that are more formal areas of interment. The graves may or may not be marked with headstones.
Historic Campsite	Evidence of short-term occupation by one or more persons that may be associated with recreation, travel, mining, ranching/farming, grazing, and hunting.
Homestead	A complex of structures that are associated with the exploitation of a new resource area for farming or ranching.
House/Cabin	Usually a single dwelling site associated with physical remains and features from a single person or family occupation.
Military Activities	Sites that are associated with military training, bombing practices, gunnery ranges, maneuver areas, camps, or air bases. Artifacts vary and may include targets, structures, ordnance, ordnance fragments, missile and aircraft debris, and other military equipment or refuse.
Mining Site	Evidence of mining activities, such as mine shafts, addits, tailings/spoil piles, milling equipment, habitation sites, trams, ore cars and tracks, trash dumps, and other mining equipment.
Ranch/Farm	A well-established complex of structures devoted to farming and/or ranching activities. Associated features, such as hay derricks, windmills and watering ponds, corrals, fences, and satellite ranch houses, may be scattered across the landscape.
Road or Trail	Evidence of historic use for transportation, such as wagon trails, pack trains, cattle drive trails, old signs, abandoned road segments, asphalt, and stone or wooden culverts, as well as abandoned bridges or abutments.
Tin Can Scatter	A concentration of tin cans that usually forms a dump that may have been scattered by the elements and is usually associated with a long-term campsite, habitation area, or other human endeavor.
Town Site	An amalgamation of structures and other physical remains of occupation by a substantial population.
Trash Dump/Scatter	A concentration of various artifacts, such as ceramics, glass, metal, bone, and leather, which usually forms a dump. The material may have been scattered by the elements or human activity and is usually associated with a long-term campsite, habitation area, or other human endeavor.

TRADITIONAL CULTURAL/RELIGIOUS SITES

Ceremonial Site	A prehistoric or historic area of sacred character. Physical evidence of ceremonial activities are usually present in the form of dance patterns, vision quest circles, rock cairns, etc.
Sacred Areas	A prehistoric or historic area of sacred character. Evidence of physical activities is not always present. Certain mountains, power places, and vision quest locations are examples of sacred areas.
Traditional Use Area	An area of traditional use for hunting, gathering of food or medicinal plants, fishing, or traveling.

APPENDIX F:
ESA-RELATED SPECIES FOUND WITHIN THE PLANNING AREA

Common Name	Scientific Name	Federal Status	Vegetation Community (substrate type identified for flowering plants only)	Field Office with Suitable Habitat†
Flowering Plants (17 species)				
Dwarf bear-poppy	*Arctomecon humilis*	Endangered	Blackbrush (sandy, clay, alluvium)	St. George
Shivwitz milk-vetch	*Astragalus ampullarioides*	Endangered	Pinyon and Juniper Woodland Blackbrush (clay, gypsiferous)	St. George
Holmgren milk-vetch	*Astragalus holmgreniorum*	Endangered	Blackbrush (limestone)	St. George
Kodachrome bladderpod	*Lesquerella tumulosa*	Endangered	Pinyon and Juniper Woodland Grassland (shale)	GSENM
San Rafael cactus	*Pediocactus despainii*	Endangered	Pinyon and Juniper Woodland (limestone)	Richfield
Barneby reed-mustard	*Schoenocrambe barnebyi*	Endangered	Salt Desert Scrub (clay)	Richfield
Wright fishhook cactus	*Sclerocactus wrightiae*	Endangered	Salt Desert Scrub Pinyon and Juniper Woodland Sagebrush Grassland (gypsiferous)	Richfield
Welsh's milkweed*	*Asclepias welshii*	Threatened	Pinyon and Juniper Woodland Sagebrush Ponderosa Pine (sandy)	Kanab
Jones cycladenia	*Cycladenia jonesii (=humilis)*	Threatened	Salt Desert Scrub Pinyon and Juniper Woodland (sandy)	Moab, Kanab, GSENM
Maguire daisy	*Erigeron maguirei*	Threatened	Pinyon and Juniper Woodland Mountain Shrub Ponderosa Pine Riparian/Wetland (sandstone)	Richfield, Kanab, GSENM
Siler pincushion cactus	*Pediocactus sileri*	Threatened	Salt Desert Scrub Blackbrush (calcareous, gypsiferous, sandy, shale)	St. George, Kanab, GSENM

Common Name	Scientific Name	Federal Status	Vegetation Community (substrate type identified for flowering plants only)	Field Office with Suitable Habitat†
Winkler cactus	*Pediocactus winkleri*	Threatened	Salt Desert Scrub Pinyon and Juniper Woodland (clay, sandstone, sandy)	Richfield
Ute ladies' tresses (*H*)	*Spiranthes diluvialis*	Threatened	Riparian/Wetland (hanging gardens)	Salt Lake, Richfield, Fillmore, Kanab, GSENM
Last chance townsendia	*Townsendia aprica*	Threatened	Salt Desert Scrub Pinyon and Juniper Woodland (clay)	Richfield
Rabbit Valley gilia (= Wonderland Alice-flower)	*Gilia caespitosa*	Candidate	Pinyon and Juniper Woodland Mountain Shrub (gypsiferous, sandstone)	Richfield
Goose Creek milk-vetch	*Astragalus anserinus*	Petitioned	Salt Desert Scrub Pinyon and Juniper Woodland Sagebrush (igneous, sandy)	Salt Lake
Mussentuchit gilia	*Gilia (=Aliciella) tenuis*	Petitioned	Salt Desert Scrub Pinyon and Juniper Woodland Grassland Mountain Shrub (limestone)	Richfield
Birds (6 species)				
Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered	Riparian/Wetland	Richfield, Moab, Monticello, Kanab, Cedar City, St. George, GSENM
California condor (*H, Exp*)	*Gymnogyps californianus*	Endangered, 10(j)	Salt Desert Scrub Pinyon and Juniper Woodland Sagebrush	Richfield, Moab, Monticello, Kanab, Cedar City, St. George, GSENM
Bald eagle (*Br*)	*Haliaeetus leucocephalus*	Threatened	Sagebrush Mixed Conifer Riparian/Wetland	Salt Lake, Richfield, Fillmore, Moab, Monticello, Kanab,

Common Name	Scientific Name	Federal Status	Vegetation Community (substrate type identified for flowering plants only)	Field Office with Suitable Habitat†
				Cedar City, St. George, GSENM
Mexican spotted owl* (*Br*)	*Strix occidentalis lucida*	Threatened	Pinyon and Juniper Woodland Sagebrush Riparian/Wetland	Richfield, Moab, Monticello, Kanab, Cedar City, St. George, GSENM
Western yellow-billed cuckoo	*Coccyzus americanus*	Candidate	Riparian/Wetland	Salt Lake, Richfield, Fillmore, Moab, Monticello, Kanab, Cedar City, St. George, GSENM
Gunnison sage grouse	*Centrocercus minimus*	Candidate, Petitioned	Sagebrush	Moab, Monticello
Mammals (6 species)				
Black-footed ferret (*H, Exp, Un*)	*Mustela nigripes*	Endangered, 10(j)	Sagebrush Grassland	Salt Lake, Moab, Monticello
Canada lynx (*H*)	*Lynx canadensis*	Threatened	Mixed Conifer	Salt Lake
Utah prairie dog	*Cynomys parvidens*	Threatened	Sagebrush Grassland	Richfield, Fillmore, Kanab, Cedar City, GSENM
White-tailed prairie dog	*Cynomys leucurus*	Petitioned	Sagebrush	Salt Lake, Moab
Gunnison prairie dog	*Cynomys gunnisoni*	Petitioned	Grassland	Moab, Monticello
Pygmy rabbit	*Brachylagus idahoensis*	Petitioned	Sagebrush	Salt Lake, Richfield, Fillmore, Kanab, Cedar City, St. George, GSENM
Fish (8 species)				
June sucker* (*I*)	*Chasmistes liorus*	Endangered	Water	Salt Lake
Humpback chub*	*Gila cypha*	Endangered	Water	Richfield, Moab,

Common Name	Scientific Name	Federal Status	Vegetation Community (substrate type identified for flowering plants only)	Field Office with Suitable Habitat†
(*H*)				Monticello, Kanab, GSENM
Bonytail* (*H*)	*Gila elegans*	Endangered	Water	Richfield, Moab, Monticello, Kanab, GSENM
Virgin River chub*	*Gila seminude (=robusta)*	Endangered	Water	St. George
Woundfin*	*Plagopterus argentissimus*	Endangered	Water	St. George
Colorado pikeminnow (=squawfish)* (*H*)	*Ptychocheilus lucius*	Endangered	Water	Richfield, Moab, Monticello, Kanab, GSENM
Razorback sucker* (*H*)	*Xyrauchen texanus*	Endangered	Water	Richfield, Moab, Monticello, Kanab, GSENM
Lahontan cutthroat trout (*I*)	*Oncorhynchus clarki henshawi*	Threatened	Water	Salt Lake
Invertebrates (3 species)				
Kanab ambersnail**	*Oxyloma haydeni kanabensis*	Endangered	Riparian/Wetland	Kanab
Fat-whorled pondsnail	*Stagnicola bonnevillensis*	Candidate	Riparian/Wetland	Salt Lake
Coral Pink Sand Dunes tiger beetle	*Cicindela limbata albissima*	Candidate, Petitioned	Pinyon and Juniper Woodland Sagebrush Ponderosa Pine	Kanab
Reptiles (1 species)				
Desert Tortoise, Mojave population*	*Gopherus agassizii*	Threatened	Blackbrush	St. George

†Suitable habitat may or may not occur on BLM-administered land within the noted field office; the suitable habitat may occur on private, state or other federal land within the boundaries of that field office. Suitable habitat does not denote the actual presence of species.

[a] **DEFINITIONS FOR NOTATIONS:**

- Species with an asterisk (*) have designated critical habitat. Species with a double asterisk (**) have proposed critical habitat.
- *Br*—Species known to nest or breed within the planning area.

- *H*—Species or populations existed in historical locations (i.e., the current range or number of individuals or populations has decreased when compared to historical standards). For extirpated species, all management areas are considered historical.
- *Exp*—Management areas contain designated use areas for experimental, nonessential populations designated under Section 10(j) of the Endangered Species Act, as amended.
- *I*—Management areas contain introduced, refugia populations of the species.
- *Un*—Management areas contain unconfirmed historical locations of the species.

DEFINITIONS FOR SPECIES STATUS:

- Endangered species are those species or distinct populations listed by the USFWS that have a probability of worldwide extinction.
- Threatened species are those species or distinct populations listed by the USFWS that are threatened with becoming endangered.
- Candidate and Petitioned species have no legal protection under the Endangered Species Act, as amended. However, the USFWS has sufficient information on biological vulnerability and threats to Candidate species that are under active consideration by the USFWS for federal listing. For petitioned species, outside entities have submitted petitions to the USFWS to consider these species for federal listing. Candidate or Petitioned species could be proposed or listed during the life of the Proposed Action for this project.
- Species designated as "10(j)" are considered by the U. S. Fish and Wildlife Service to be "experimental and non-essential populations" within designated use areas in Utah, as provided by Section 10(j) of the Endangered Species Act, as amended. This designation provides greater management flexibility. For the BLM, 10(j) populations of federally listed species are equivalent to a "proposed" status.
- Species designated as "Extirpated" are federally endangered, threatened, or candidate species that are considered by the U.S. Fish and Wildlife Service to no longer occur in Utah.

APPENDIX G:
BLM SENSITIVE SPECIES FOUND WITHIN THE PLANNING AREA

Common Name	Scientific Name	Federal Status	Vegetation Community (substrate type identified for flowering plants only)	Field Office with Suitable Habitat†
Flowering Plants (83 species)				
Chatterley's onion	*Allium geyeri var. chatterleyi*	SPS	Pinyon and Juniper Woodland Mountain Shrub Ponderosa Pine (sandstone)	Monticello
Lori's columbine	*Aquilegia loriae*	SPS	Riparian/Wetland (sandstone)	Kanab, GSENM
Grouse Creek arabis	*Arabis falcatoria*	SPS	Grassland (chip rock)	Salt Lake
Gumbo milk-vetch	*Astragalus ampullarius*	SPS	Salt Desert Scrub Blackbrush (clay)	Kanab, St. George, GSENM
Cronquist milk-vetch	*Astragalus cronquistii*	SPS	Salt Desert Scrub Blackbrush (clay, sandstone, sandy)	Monticello
Pohl's milk-vetch	*Astragalus lentiginosus var. pohlii*	SPS	Salt Desert Scrub Sagebrush (sandy)	Salt Lake
Pink egg milk-vetch	*Astragalus oophorus var. lonchocalyx*	SPS	Salt Desert Scrub Pinyon and Juniper Woodland Sagebrush (sandy)	Cedar City
Peabody's milk-vetch	*Astragalus pubentissimus var. peabodianus*	SPS	Salt Desert Scrub Pinyon and Juniper Woodland (sandstone, shale)	Moab
Cisco milk-vetch	*Astragalus sabulosus var. sabulosus*	SPS	Salt Desert Scrub (shale)	Moab
Escarpment milk-vetch	*Astragalus striatiflorus*	SPS	Salt Desert Scrub Pinyon and Juniper Woodland Ponderosa Pine (sandy)	Kanab, St. George, GSENM
Basalt milk-vetch (Silver milkvetch)	*Astragalus subcinereus var. basalticus*	SPS	Pinyon and Juniper Woodland Ponderosa Pine (igneous)	Richfield
Current milk-vetch	*Astragalus uncialis*	SPS	Salt Desert Scrub (limestone)	Fillmore
Dunes four-	*Atriplex*	SPS	Salt Desert Scrub	Fillmore

Common Name	Scientific Name	Federal Status	Vegetation Community (substrate type identified for flowering plants only)	Field Office with Suitable Habitat†
wing saltbush	*canescens var. gigantea*		Pinyon and Juniper Woodland (sandy)	
Baird's camissonia	*Camissonia bairdii*	SPS	Pinyon and Juniper Woodland Blackbrush (clay)	St. George
Slender camissonia	*Camissonia exilis*	SPS	Pinyon and Juniper Woodland Sagebrush Grassland (calcareous, clay, gypsiferous, sandy)	Kanab, GSENM
Gould's camissonia	*Camissonia gouldii*	SPS	Pinyon and Juniper Woodland Sagebrush (igneous)	St. George
Ownbey thistle	*Cirsium ownbeyi*	SPS	Pinyon and Juniper Woodland Sagebrush Riparian/Wetland (sandy)	Fillmore
Virgin thistle	*Cirsium virginensis*	SPS	Riparian/Wetland (hanging gardens)	St. George
Mound cryptanth	*Cryptantha compacta*	SPS	Salt Desert Scrub (dolomitic, gravelly loam)	Fillmore, Cedar City
Creutzfeldt-flower	*Cryptantha creutzfeldtii*	SPS	Salt Desert Scrub (clay, shale)	Richfield
Pipe Springs cryptanth	*Cryptantha semiglabra*	SPS	Salt Desert Scrub Pinyon and Juniper Woodland Sagebrush (clay)	St. George
Small spring parsley	*Cymopterus acaulis var. parvus*	SPS	Salt Desert Scrub Pinyon and Juniper Woodland Sagebrush (sandy)	Salt Lake, Fillmore
Pinnate spring parsley (Beck biscuitroot)	*Cymopterus beckii*	SPS	Pinyon and Juniper Woodland Mountain Shrub Ponderosa Pine (sandy)	Richfield, Monticello, Kanab, GSENM
Hole-in-the-rock prairieclover	*Dalea flavescens var. epica*	SPS	Blackbrush (sandstone, sandy)	Monticello, Kanab, GSENM
Kass rockcress	*Draba kassii*	SPS	Pinyon and Juniper Woodland	Salt Lake

Common Name	Scientific Name	Federal Status	Vegetation Community (substrate type identified for flowering plants only)	Field Office with Suitable Habitat†
			Mountain Shrub Mixed Conifer (quartzite)	
Nevada willowherb	*Epilobium nevadense*	SPS	Pinyon and Juniper Woodland Mountain Shrub (limestone, quartzite)	Fillmore, Cedar City, St. George
Kachina daisy	*Erigeron kachinensis*	SPS	Ponderosa Pine Riparian/Wetland Aspen (sandstone)	Monticello
Cronquist buckwheat	*Eriogonum corymbosum var. cronquistii*	SPS	Salt Desert Scrub Pinyon and Juniper Woodland (granitic)	Kanab, GSENM
Big Flattop buckwheat (Smith wild buckwheat)	*Eriogonum corymbosum var. smithii*	SPS	Salt Desert Scrub Grassland (sandstone, sandy)	Richfield
Ibex buckwheat (sand-loving buckwheat)	*Eriogonum nummulare var. ammophilum*	SPS	Salt Desert Scrub Pinyon and Juniper Woodland (alluvium, sandy)	Fillmore
Scarlet buckwheat	*Eriogonum phoeniceum*	SPS	Pinyon and Juniper Woodland Mountain Shrub (igneous)	Cedar City
Bluff buckwheat	*Eriogonum racemosum var. nobile*	SPS	Salt Desert Scrub (sandy)	Monticello
Frisco buckwheat	*Eriogonum soredium*	SPS	Pinyon and Juniper Woodland Sagebrush (limestone)	Cedar City
Utah spurge	*Euphorbia nephradenia*	SPS	Salt Desert Scrub Blackbrush (clay, sandy)	Richfield, Kanab, GSENM
Cataract gilia	*Gilia latifolia var. imperialis*	SPS	Salt Desert Scrub (sandstone, sandy)	Richfield, Monticello, Kanab, GSENM
Alcove bog-orchid	*Habenaria zothecina*	SPS	Riparian/Wetland (hanging gardens)	Moab, Monticello, Kanab, GSENM
Deep Creek stickseed	*Hackelia ibapensis*	SPS	Mountain Shrub Mixed Conifer (granitic, quartzite)	Salt Lake, Fillmore
Pine Valley goldenbush	*Haplopappus crispus*	SPS	Mountain Shrub Mixed Conifer Ponderosa Pine Aspen	Fillmore, St. George

Common Name	Scientific Name	Federal Status	Vegetation Community (substrate type identified for flowering plants only)	Field Office with Suitable Habitat†
			(gravelly loam, sandy)	
Greenwood's goldenbush	*Haplopappus lignumviridis*	SPS	Riparian/Wetland (sandy)	Richfield
Cedar Breaks goldenbush	*Haplopappus zionis*	SPS	Mixed Conifer Ponderosa Pine (limestone)	Kanab, Cedar City, GSENM
Paria iris	*Iris pariensis*	SPS	Grassland (sandy)	Kanab, GSENM
Ostler's Ivesia	*Ivesia shockleyi var. ostleri*	SPS	Pinyon and Juniper Woodland Ponderosa Pine (quartzite)	Cedar City
Cliff jamesia	*Jamesia americana var. zionis*	SPS	Pinyon and Juniper Woodland Mountain Shrub Ponderosa Pine (hanging gardens, sandstone)	Kanab, St. George, GSENM
Four-petal jamesia	*Jamesia tetrapetala*	SPS	Sagebrush Mountain Shrub (limestone)	Fillmore
Claron pepperplant	*Lepidium montanum var. claronense*	SPS	Pinyon and Juniper Woodland Sagebrush Ponderosa Pine (limestone)	Richfield, Kanab, GSENM
Ostler pepperplant	*Lepidium ostleri*	SPS	Pinyon and Juniper Woodland (limestone)	Cedar City
Clark's lomatium	*Lomatium graveolens var. clarkii*	SPS	Mountain Shrub Ponderosa Pine (limestone, sandstone)	St. George
Canyonlands lomatium (Broad-leaved biscuitroot)	*Lomatium latilobum*	SPS	Salt Desert Scrub Pinyon and Juniper Woodland (sandstone)	Moab, Monticello
Cutler's lupine	*Lupinus caudatus var. cutleri*	SPS	Pinyon and Juniper Woodland (unspecified)	Kanab, GSENM
Dolores rushpink	*Lygodesmia grandiflora var. doloresensis*	SPS	Pinyon and Juniper Woodland Sagebrush Blackbrush (alluvium, sandy)	Moab
Entrada rushpink	*Lygodesmia grandiflora var. entrada*	SPS	Salt Desert Scrub Pinyon and Juniper Woodland (sandy)	Moab

Common Name	Scientific Name	Federal Status	Vegetation Community (substrate type identified for flowering plants only)	Field Office with Suitable Habitat†
Shultz blazing star	*Mentzelia shultziorum*	SPS	Salt Desert Scrub (clay)	Moab
Murdock's evening primrose	*Oenothera murdockii*	SPS	Pinyon and Juniper Woodland (clay)	Kanab, GSENM
Trotter oreoxis	*Oreoxis trotteri*	SPS	Salt Desert Scrub Pinyon and Juniper Woodland (sandstone)	Moab
Barneby's breadroot	*Pediomelum aromaticum var. barnebyi*	SPS	Pinyon and Juniper Woodland (clay)	St. George
Tuhy's breadroot	*Pediomelum aromaticum var. tuhyi*	SPS	Salt Desert Scrub Pinyon and Juniper Woodland (sandstone, sandy)	Monticello
Kane breadroot	*Pediomelum epipsilum*	SPS	Pinyon and Juniper Woodland (clay)	Kanab, GSENM
Sandloving penstemon	*Penstemon ammophilus*	SPS	Mountain Shrub Ponderosa Pine (sandy)	Kanab, St. George, GSENM
Neese narrowleaf penstemon	*Penstemon angustifolius var. dulcis*	SPS	Salt Desert Scrub Pinyon and Juniper Woodland Sagebrush (sandy)	Fillmore
Franklin's penstemon	*Penstemon franklinii*	SPS	Salt Desert Scrub Sagebrush Grassland (sandy)	Cedar City
Idaho penstemon	*Penstemon idahoensis*	SPS	Pinyon and Juniper Woodland Sagebrush (limestone, shale)	Salt Lake
Pinyon penstemon (Pine Valley Mtn penstemon)	*Penstemon pinorum*	SPS	Salt Desert Scrub Pinyon and Juniper Woodland Sagebrush Mountain Shrub (limestone)	Cedar City, St. George
Alcove rock daisy	*Perityle specuicola*	SPS	Salt Desert Scrub (sandstone)	Moab, Monticello
Parry's petalonyx	*Petalonyx parryi*	SPS	Salt Desert Scrub Blackbrush (clay, gypsiferous)	St. George
Cronquist's phacelia	*Phacelia cronquistiana*	SPS	Pinyon and Juniper Woodland Sagebrush	Kanab, GSENM

Common Name	Scientific Name	Federal Status	Vegetation Community (substrate type identified for flowering plants only)	Field Office with Suitable Habitat†
			Ponderosa Pine (clay)	
Bluff phacelia	*Phacelia indecora*	SPS	Salt Desert Scrub	Monticello
Atwood's pretty	*Phacelia pulchella var. atwoodii*	SPS	Pinyon and Juniper Woodland Sagebrush Mountain Shrub (clay)	Kanab, GSENM
Utah phacelia	*Phacelia utahensis*	SPS	Salt Desert Scrub (clay, gypsiferous, shale)	Richfield
Cottam cinquefoil	*Potentilla cottamii*	SPS	Mixed Conifer (quartzite)	Salt Lake Fillmore
House Range primrose	*Primula cusickiana var. domensis (Primula domensis)*	SPS	Mountain Shrub (limestone)	Fillmore
Jones indigo-bush (glandular indigo-bush)	*Psorothamnus polydenius var. jonesii*	SPS	Salt Desert Scrub Grassland (sandy, shale)	Moab
Chinle chia	*Salvia columbariae var. argillacea*	SPS	Pinyon and Juniper Woodland Blackbrush (alluvium, clay, gypsiferous)	Kanab, GSENM
Jones' globemallow	*Sphaeralcea caespitosa var. caespitosa*	SPS	Salt Desert Scrub Grassland (calcareous, dolomitic)	Fillmore, Cedar City
Smoky Mountain globemallow	*Sphaeralcea grossulariifolia var. fumariensis (=Sphaeralcea fumariensis)*	SPS	Salt Desert Scrub Pinyon and Juniper Woodland Grassland Blackbrush (alluvium)	Kanab, GSENM
Jane's globemallow	*Sphaeralcea janeae*	SPS	Salt Desert Scrub (sandy)	Richfield, Fillmore, Moab, Monticello
Psoralea globemallow	*Sphaeralcea psoraloides*	SPS	Salt Desert Scrub Pinyon and Juniper Woodland (conglomerate, gypsiferous, limestone, sandstone, shale)	Richfield, Moab
White River swertia	*Swertia gypsicola*	SPS	Salt Desert Scrub (gypsiferous)	Fillmore
Bicknell thelesperma (Alpine greenthread)	*Thelesperma windhamii (= T. subnudum var. alpinum)*	SPS	Pinyon and Juniper Woodland Mountain Shrub Mixed Conifer (clay, limestone,	Richfield

Common Name	Scientific Name	Federal Status	Vegetation Community (substrate type identified for flowering plants only)	Field Office with Suitable Habitat†
			sandstone, sandy)	
Kanab thelypody	*Thelypodiopsis ambigua var. erecta*	SPS	Salt Desert Scrub Pinyon and Juniper Woodland (clay, shale)	Kanab, GSENM
Sevier townsendia	*Townsendia jonesii var. lutea*	SPS	Salt Desert Scrub Pinyon and Juniper Woodland Sagebrush (clay, shale)	Richfield, Fillmore
Frisco clover	*Trifolium friscanum (=T. andersonii var. friscanum)*	SPS	Pinyon and Juniper Woodland (igneous, limestone)	Fillmore, Cedar City
Tropic goldeneye	*Viguiera soliceps*	SPS	Salt Desert Scrub (clay, shale)	Kanab, GSENM
Rock violet	*Viola lithion*	SPS	Mixed Conifer Aspen (limestone, quartzite)	Salt Lake
Birds (13 species)				
Northern goshawk	*Accipiter gentiles*	CA	Mixed Conifer Riparian/Wetland	Salt Lake, Richfield, Fillmore, Moab, Monticello, Kanab, Cedar City, St. George, GSENM
Grasshopper sparrow	*Ammodramus savannarum*	WSC	Grassland	Salt Lake, Richfield
Short-eared owl	*Asio flammeus*	WSC	Grassland	Salt Lake, Richfield, Fillmore, Monticello, Kanab, Cedar City, St. George, GSENM
Burrowing owl	*Athene cunicularia*	WSC	Grassland	Salt Lake, Richfield, Fillmore, Moab, Monticello, Kanab, Cedar City, St. George, GSENM
Ferruginous hawk	*Buteo regalis*	WSC	Sagebrush Grassland	Salt Lake, Richfield, Fillmore, Moab, Monticello, Kanab, Cedar City, St. George, GSENM
Black swift	*Cypseloides niger*	WSC	Mountain Shrub Mixed Conifer Riparian/Wetland Aspen	Salt Lake, Richfield, Cedar City, St. George
Bobolink	*Dolichonyx oryzivorus*	WSC	Riparian/Wetland	Salt Lake, Richfield, Fillmore, Monticello, St. George
Lewis's	*Melanerpes lewis*	WSC	Pinyon and Juniper	Salt Lake, Richfield,

Common Name	Scientific Name	Federal Status	Vegetation Community (substrate type identified for flowering plants only)	Field Office with Suitable Habitat†
woodpecker			Woodland Mountain Shrub Mixed Conifer Ponderosa Pine Riparian/Wetland	Fillmore, Moab, Monticello, Kanab, Cedar City, St. George, GSENM
Long-billed curlew	*Numenius americanus*	WSC	Grassland	Salt Lake, Richfield, Fillmore, Kanab, Cedar City, St. George, GSENM
American white pelican	*Pelecanus erythrorhynchos*	WSC	Riparian/Wetland	Salt Lake, Richfield, Fillmore, Moab, Monticello, Kanab, St. George, GSENM
Three-toed woodpecker	*Picoides tridactylus*	WSC	Mixed Conifer Aspen	Salt Lake, Richfield, Fillmore, Moab, Monticello, Kanab, Cedar City, St. George, GSENM
Greater sage grouse	*Centrocercus urophasianus*	WSC	Sagebrush	Salt Lake, Richfield, Fillmore, Moab, Monticello, Kanab, Cedar City, St. George, GSENM
Sharp-tailed grouse	*Tympanuchus phasianellus*	WSC	Grassland	Salt Lake
Mammals (11 species)				
Preble's shrew	*Sorex preblei*	WSC	Riparian/Wetland	Salt Lake
Townsend's big-eared bat	*Corynorhinus townsendii*	WSC	Mountain Shrub Mixed Conifer	Salt Lake, Richfield, Fillmore, Moab, Monticello, Kanab, Cedar City, St. George, GSENM
Spotted bat	*Euderma maculatum*	WSC	Salt Desert Scrub Mountain Shrub Mixed Conifer Ponderosa Pine	Salt Lake, Richfield, Moab, Monticello, Kanab, Cedar City, St. George, GSENM
Allen's big-eared bat	*Idionycteris phyllotis*	WSC	Mountain Shrub Mixed Conifer Ponderosa Pine	Richfield, Moab, Monticello, Kanab, St. George, GSENM
Western red bat	*Lasiurus blossevillii*	WSC	Mixed Conifer Riparian/Wetland	Salt Lake, St. George
Fringed myotis	*Myotis thysanodes*	WSC	Salt Desert Scrub Pinyon and Juniper Woodland Mixed Conifer	Salt Lake, Richfield, Fillmore, Moab, Monticello, Kanab, Cedar City, St. George, GSENM
Big free-tailed bat	*Nyctinomops macrotis*	WSC	Mountain Shrub Mixed Conifer	Richfield, Fillmore, Monticello, Kanab,

Common Name	Scientific Name	Federal Status	Vegetation Community (substrate type identified for flowering plants only)	Field Office with Suitable Habitat†
				Cedar City, St. George, GSENM
Silky pocket mouse	*Perognathus flavus*	WSC	Grassland	Monticello
Dark kangaroo mouse	*Microdipodops megacephalus*	WSC	Sagebrush	Salt Lake, Fillmore, Cedar City
Mexican vole	*Microtus mexicanus*	WSC	Grassland	Monticello
Kit fox	*Vulpes macrotis*	WSC	Salt Desert Scrub	Salt Lake, Richfield, Fillmore, Moab, Monticello, Kanab, Cedar City, St. George, GSENM
Fish (10 species)				
Bonneville cutthroat trout	*Oncorhynchus clarki utah*	CA	Water	Salt Lake, Richfield, Fillmore, Kanab, Cedar City, St. George, GSENM
Colorado Rvr cutthroat trout	*Oncorhynchus clarki pleuriticus*	CA	Water	Salt Lake, Richfield, Kanab, GSENM
Virgin spinedace	*Lepidomeda mollispinis mollinspinis*	CA	Water	St. George
Least chub	*Iotichthys phlegethontis*	CA	Water	Salt Lake, Fillmore, Cedar City
Leatherside chub	*Gila copei*	WSC	Water	Salt Lake, Richfield, Fillmore, Kanab, GSENM
Roundtail chub	*Gila robusta*	CA	Water	Salt Lake, Richfield, Moab, Monticello, Kanab, GSENM
Desert sucker	*Catostomus clarki*	WSC	Water	Kanab, St. George, GSENM
Bluehead sucker	*Catostomus discobolus*	CA	Water	Salt Lake, Richfield, Moab, Monticello, Kanab, St. George, GSENM
Flannelmouth sucker	*Catostomus latipinnis*	CA	Water	Salt Lake, Richfield, Moab, Monticello, Kanab, St. George, GSENM
Yellowstone cutthroat trout	*Oncorhynchus clarki bouvieri*	WSC	Water	Salt Lake
Invertebrates (16 species)				
Eureka mountainsnail	*Oreohelix eurekensis*	WSC	Pinyon and Juniper Woodland Sagebrush Grassland	Salt Lake, Fillmore, Moab

Common Name	Scientific Name	Federal Status	Vegetation Community (substrate type identified for flowering plants only)	Field Office with Suitable Habitat†
			Mountain Shrub Mixed Conifer Aspen	
Lyrate mountainsnail	*Oreohelix haydeni*	WSC	Sagebrush Mountain Shrub	Salt Lake
Yavapai mountainsnail	*Oreohelix yavapai*	WSC	Mountain Shrub Mixed Conifer Aspen	Monticello
Cloaked physa	*Physa megalochlamys*	WSC	Riparian/Wetland Water	Fillmore
Utah physa	*Physella utahensis*	WSC	Riparian/Wetland Water	Salt Lake, Richfield, Fillmore, Kanab, GSENM
Longitudinal gland pyrg	*Pyrgulopsis anguina*	WSC	Riparian/Wetland Water	Fillmore
Desert springsnail	*Pyrgulopsis deserta*	WSC	Riparian/Wetland Water	St. George
Hamlin Valley pyrg	*Pyrgulopsis hamlinensis*	WSC	Riparian/Wetland Water	Cedar City
Bifid duct pyrg	*Pyrgulopsis peculiaris*	WSC	Riparian/Wetland Water	Fillmore
Bear Lake springsnail	*Pyrgulopsis pilsbryana*	WSC	Riparian/Wetland Water	Salt Lake
Black Canyon pyrg	*Pyrgulopsis plicata*	WSC	Riparian/Wetland Water	Kanab, GSENM
Sub-globose Snake pyrg	*Pyrgulopsis saxatilis*	WSC	Riparian/Wetland Water	Fillmore
Southern Bonneville pyrg	*Pyrgulopsis transversa*	WSC	Riparian/Wetland Water	Salt Lake, Richfield
Northwest Bonneville pyrg	*Pyrgulopsis variegata*	WSC	Riparian/Wetland Water	Salt Lake
California floater	*Anodonta californiensis*	WSC	Riparian/Wetland Water	Salt Lake, Richfield, Fillmore
Western pearlshell	*Margaritifera falcate*	WSC	Riparian/Wetland Water	Salt Lake
Amphibians (3 species)				
Boreal (= Western) toad	*Bufo boreas*	WSC	Mixed Conifer Riparian/Wetland	Salt Lake, Richfield, Kanab, GSENM
Arizona toad	*Bufo microscaphus*	WSC	Riparian/Wetland	Monticello, Kanab, Cedar City, St. George, GSENM
Columbia spotted frog	*Rana luteiventris*	CA	Riparian/Wetland	Salt Lake, Fillmore. Price, Richfield
Reptiles (12 species)				
Zebra-tailed lizard	*Callisaurus draconoides*	WSC	Salt Desert Scrub	St. George
Western	*Coleonyx*	WSC	Salt Desert Scrub	St. George

Common Name	Scientific Name	Federal Status	Vegetation Community (substrate type identified for flowering plants only)	Field Office with Suitable Habitat†
banded gecko	*variegates*		Pinyon and Juniper Woodland Mountain Shrub	
Desert iguana	*Dipsosaurus dorsalis*	WSC	Blackbrush	St. George
Gila monster	*Heloderma suspectum*	WSC	Blackbrush	St. George
Common chuckwalla	*Sauromalus ater*	WSC	Salt Desert Scrub	Monticello, Kanab, Cedar City, St. George, GSENM
Desert night lizard	*Xantusia vigilis*	WSC	Blackbrush	Monticello, Kanab, St. George, SENM
Sidewinder	*Crotalus cerastes*	WSC	Salt Desert Scrub	St. George
Speckled rattlesnake	*Crotalus mitchellii*	WSC	Salt Desert Scrub	St. George
Mojave rattlesnake	*Crotalus scutulatus*	WSC	Salt Desert Scrub	St. George
Cornsnake	*Elaphe guttata*	WSC	Riparian/Wetland	Moab
Smooth greensnake	*Opheodrys vernalis*	WSC	Sagebrush Riparian/Wetland	Salt Lake, Moab, Monticello
Western threadsnake	*Leptotyphlops humilis*	WSC	Salt Desert Scrub	St. George

†Suitable habitat may or may not occur on BLM-administered land within the noted field office; the suitable habitat may occur on private, state or other federal land within the boundaries of that field office. Suitable habitat does not denote the actual presence of species.

[a] Species already represented as federally listed, candidate, or petitioned species are not repeated here. Sources of information: Utah Sensitive Species List, December 18, 2003 (State of Utah, Department of Natural Resources, Division of Wildlife Resources); Draft Bureau of Land Management Sensitive Plant Species List for Utah (August 2002).

[b] BLM sensitive species status designations are Conservation Agreement (CA), BLM Wildlife Species of Concern (WSC), and BLM Sensitive Plant Species (SPS). Conservation Agreement species receive special management under a Conservation Agreement in order to preclude the need for listing. Conservation Agreements are voluntary cooperative plans among resource agencies that identify threats to a species and implement conservation measures to proactively conserve and protect species in decline.

APPENDIX H:
UTAH URBAN WILDLAND INTERFACE COMMUNITIES WITHIN THE VICINITY OF FEDERAL LANDS THAT ARE AT HIGH RISK FROM WILDFIRE (DOI, 2001)

FEDERAL REGISTER: AUGUST 17, 2001
VOLUME 66, NUMBER 160
NOTICES PAGE 43383-43435
[WAIS.ACCESS.GPO.GOV]

Accord Lakes
Adamsville
Alpine
Alta
Ant Flat
Antimony/Antimony Mining
Apple Valley
Area E. of Fillmore And Holden
Argyle Ridge/Canyon
Arrowhead
Aspen Academy
Aspen Highlands
Aspen Hills
Avon--Smithfield Bench
Baker Canyon
Bandanna Ranch
Bear River Lodge/Christmas Meadow
Bear River Nwr Hq/Facilities
Bear Valley Jct.
Beaver
Beaver Dam--Sanpete
Beaver Mt.
Beaver Springs/Aspen Meadows
Beryl
Best Friends
Big Cottonwood
Big Pine
Big Water/Church Wells/East Clark Bench
Black Hawk
Black Ridge Interface
Black Ridge Ranches
Blacksmith Fork
Blue Mountain Ranch
Blue Spring
Blue Springs
Bluff
Bonanza
Boulder Point
Boulder/Haws Pasture/King Pasture
Bountiful
Brianhead
Brigham--Collinston Bench
Brigham--Willard Bench
Brighten
Brooks Canyon
Brookside/Central
Brownie Lakes
Bryants Fork
Bryce Park Infrastructure
Bryce Woodlands/Long Valley/Canyon
Buckeye Resort
Buckhorn
Bug Point
Bull Frog

Burrville
Cainesville
Callao
Cannonville
Canyon Meadows
Canyon Terrace/Blanding
Castle Valley
Castle Valley--Grand
Causey Estates
Cedar City
Cedar Fort
Cedar High Lands
Cedar Hill
Cedar Hills
Cedar Mountain
Cedar Point
Center Creek
Center Creek Youth Camp
Centerville
Chekshani
Citation Oil Transfer
Clear Creek--Box Elder
Cloud Rim
Cougar Canyon
Cove Fort
Covered Bridge
Cove-Richmond Bench
Currant Ck. Mt.
Current Creek
Daniels Summit
Davis Point/Main Canyon
Deer Lodge
Deer Springs
Deer Valley
Defas
Derffie Creek
Dewey
Diamond Bar X
Diamond Mountain
Diamond Valley/Dammeron
Dimple Dell
Docs Beach
Doug Thorley
Dove Creek
Draper
Dry Fork
Duck Creek Area
Dugway
Dutch John
Eagle Estates
Eagle Mountain
East Carbon/Sunnyside
East Fork Bsa
East Hyrum
East Zion Estates
Eastside of Sevier Valley
Eden
Elk Meadow
Elk Ridge--Sanpete
Elk Ridge--Utah
Emigration Canyon
Ephraim Canyon Experiment Station
Escalante
Eskdale
Eureka/Tintic/Mammoth
Fairview Lakes
Farmington
Ferron Canyon Summer Homes
Fillmore
Fish Springs Nwr Hq/Facilities

Fishlake Summer Homes--Sevier
Flaming Gorge Acres, Pines
Forest Gardens
Fort Duchesne
Garden City/ Bridgerland
Garden City/ Sweetwater
Garden City/Little Switzerland
Garden City/Swan Creek
Garrison
Genola
George Town
Glendale
Gold Hill
Gooseberry--Sanpete
Gooseberry--Sevier
Grafton
Grass Valley
Green Hills
Greenville
Gunlock
Hancock Cove/Cedarview
Hanksville
Happy Valley
Hardware Ranch
Harrisburg
Hatch
Haycock
Henrieville
Hideaway Valley
Highland
High-Low
Highway 56/Cedar To Pinto Jct.
Highway 89 Corridor
Hilldale
Hobble Creek
Holiday
Holiday Oaks
Holiday Park/Alpine Acres
Home Ranch
Horsehead
Hurricane
Ibapah
Indian Bench
Indian Canyon
Indian Creek
Indian Ridge
Indianola
Inholdings/Park Boundaries
Ireland Meadow
Iron Springs
Iron Town
Island Park
Ivins
Johnson Canyon
Jones Hole
K & J Estates
Kanab
Kanaraville/Checkshani
Kanosh
Kaysville
Kelly Canyon
Kenilworth
Khoosharem Reservoir
Kodachrome
Kolob Terrace
Lake Point/Mills Jctn.
Lasal
Laverkin
Layton
Lebaron

Leeds
Lidias Canyon
Lindon
Little Brush Creek
Little Cottonwood
Little Diamond Fk
Little Ponderosa
Little Res.
Logan
Logan Canyon
Long Flat
Lund
Mammoth Creek/Tommy Creek/Yellow Pine
Manderfield
Manning Meadows
Manti Canyon
Mantua
Maple Canyon--Huntsville
Maple Hills
Mapleton
Meadow
Meadow Lake
Meadowville
Mia Shalom
Milburn
Milford
Millers Flat
Mills
Mineral Wash Area
Minersville
Modena
Monroe Meadows
Monticello
Morgan
Motoqua
Mountain Green
Mountain Meadow
Mt. Carmel
Mt. Carmel Jct.
Mt. Tabby Springs
Myton
Navajo Estates/Summer Homes
Neola/Whiterocks
New Castle
New Harmony/New Harmony Heights
Nordic Valley
North Creek
North Fork
North Fork Drainage/Cougar Canyon
North Ogden Bench
North Reservoir Subdivision
North Salt Lake
Oak City
Oaker Hills
Oaks Park
Ogden Canyon
Old Lasal
Olympus Cove
Ophir
Orderville
Orem
Ouray
Ouray Nwr Hq/Facilities
Pack Creek
Palisade
Panguitch
Panguitch Lake/Beaver Dam/Clear Creek
Panorama Woods
Parawon Front I-15 Corridor/To Cedar City
Park Admin/Historic District

Park Admin/Park Boundary
Park City/Deer Valley
Park Valley
Parogonah
Parowan
Partoun
Pine Canyon
Pine Creek
Pine Hollow
Pine Valley
Pine View
Pines Ranches/Pine Mt.
Pinto
Pinwillies
Pleasant Grove
Pleasant View
Pole Patch
Ponderosa Estates
Ponderosa Villa
Porterville
Poverty Flat
Provo
Puffer Lake
Quitchapah
Rabbit Gulch
Rainbow Meadow/Ireland Estates/Meadow
Ranch Canyon
Randlette
Red Canyon
Red Canyon--Daggett
Readers
Reese's Flat Subdivision
Reservation Ridge
Reservoir Road
River Forest
Rock Creek
Rockville
Rockwood
Rocky Ridge
Ruby's Inn/Bryce Canyon/Pines/Fosters, UT \1\
Rush Valley
Salt Gulch Ranch
Salt Lake City
Sumac
San Pitch Canyon
Sandy
Santa Clara
Antiquing
Saratoga
Schofield Reservoir
Sevier River Estates
Sheep Creek
Shipways
Silver Lake
Silver Reef
Silver Valley
Skull Valley
Skull Valley
Sky Haven
Skyline Mountain Resort
Snow Basin
Soldier Creek
Soldier Hollow
South Canaan
South Canyon
South Canyon--Avon
South Fork--Huntsville
South Fork Chalk Creek
South Ogden Bench

South Weber
Spencer Bench
Spencer Cliff Estates
Spirit Lake Lodge
Spring Canyon/Helper
Spring City Ranchero
Springdale
Springdell
Springville
St. George
Stillwater
Stockton
Storm Haven
Stout Canyon
Strawberry Pinnacles
Strawberry Valley
Sulpherdale
Summit
Summit Park/Pinebrook
Suncrest
Sundance
Swains Creek
Swens Canyon
Sylvin Canyon
Taylor Flat
Teasdale/Torrey
Terra
Thousand Peaks Ranch
Three Creek
Three Peaks
Tibble Fk
Timberlakes
Todd's Junction
Tooele
Toquerville
Trappers Loop
Tridell
Tropic
Trout Creek
Two Bears/Pine Plateau
Uintah Bench
Uintah Canyon
Upper Valley
Veyo
Virgin
Vivian Park
Washington
Wecco
West Hills
West Water
Whispering Pines
White Mesa
Whiterocks
Wide Hollow
Widsoe Jct./Steed Ranch
Willow Basin
Winchester Hills
Wolf Creek Ranch
Woodland Hills
Woodruff/Chournos
Woodruff/Eagle Springs
Yellowstone Canyon
Yost
Zion Lodge
Zion View